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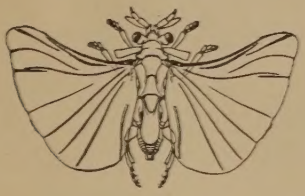

VOL. 4

Edited by

S. A. NEAVE, O.B.E., M.A., D.Sc.,

for

The Royal Entomological Society of London

Assisted by

F. W. EDWARDS, M.A., Sc.D.
H. ELTRINGHAM, M.A., D.Sc., F.R.S.
K. JORDAN, Ph.D., F.R.S.
SIR GUY A. K. MARSHALL, C.M.G., D.Sc., F.R.S.
HUGH SCOTT, M.A., Sc.D.
W. H. T. TAMS

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CONTENTS

PAGE

ANDREWES, H. E., F.R.E.S. Keys to some Indian genera of Carabidae (Col.).—V. The genera *Cymindoidea*, *Platytarus*, and *Taridius* 201

ARROW, Gilbert J., F.R.E.S. A note on the genus *Narycius* and a few other genera of Cetoniid Coleoptera 101

BALFOUR-BROWNE, Frank, M.A. (Oxon. et Cantab.), F.R.S.E., F.Z.S., F.R.E.S., P.R.M.S. The proventriculus in the Dytiscidae (Col.) as a taxonomic character 191

BERNHAUER, Dr. Max. Neue Staphyliniden (Col.) aus Südamerika . . . 90

„ „ Zwei neue Staphylinidengattungen (Col.) aus Afrika 213

BLAISDELL, Frank E., Sr. New species of *Eleodes* from Mexico in the British Museum (Col. : Tenebrionidae) 156

BRYANT, G. E., F.R.E.S. Some new Phytophaga (Col.) from Africa . . . 181

CHEESMAN, L. E., F.R.E.S. A new genus of Reduviidae (Hem.) from Papua . . 47

CHOPARD, L. An interesting new genus of House Cricket (Orth., Gryllidae) . . 122

COCKERELL, T. D. A., F.R.E.S. New bees from Trinidad 10

COLLENETTE, C. L., F.R.E.S. Genera and types of the Lymantriidae (Heterocera). 241

CORBETT, G. H., B.Sc., F.R.E.S. Three New Aleurodids (Hem.) 8

CORPORAAL, J. B., F.R.E.S. Two new Cleridae (Col.) from India 34

DIBB, John R., F.R.E.S. Further notes on *Aulacocyclus* (Col., Passalidae) . . 227

DUDA, Dr. Oswald. Einige neue afrikanische Akalyptrate Musciden (Dipt.) des British Museum 25

„ „ Weitere neue und wenig Bekannte exotische Akalyptraten (Dipt.) des British Museum 238

EDWARDS, F. W., M.A., Sc.D., F.R.E.S. New Neotropical Bibioninae (Diptera) . 19

EVANS, Brigadier W. H., C.S.I., C.I.E., D.S.O., F.R.E.S. The genus *Potanthus*, Scudder (Lep., Hesperiidae). 100

FERRIÈRE, Ch., D.Sc. Notes on some bred Exotic Eupelmidae (Hym. Chalc.). . 145

GARDNER, J. C. M., F.R.E.S. A new Indian species of *Atractocerus* (Col., Lymexylonidae) 69

GREEN, E. E., F.R.E.S. On a species of *Ceroplastes* (Hem. Coccidae), hitherto confused with *C. ceriferus*, Anders 180

GUNTHER, Klaus. Three new species of *Otidognathus*, Lac. (Col. Curc.) . . . 154

HALL, W. J., D.Sc., F.R.E.S. Observations on the Coccidae of Southern Rhodesia. Parts VI, VII 73, 217

HANITSCH, R., Ph.D. On further Blattids (Orth.) from Celebes 14

HEMMING, Francis, C.B.E., F.R.E.S. Notes on seventeen genera of Rhopalocera . 1

„ „ A note on Jacob Hübner's *Verzeichniss der Fertigen Blätter und Werke* of 12th March, 1814, with a facsimile 36

„ „ A note on Jacob Hübner's *Erste Zuträge zur Sammlung exotischer Schmetterlinge* of 1808 38

PAGE

HEMMING, Francis, C.B.E., F.R.E.S. On the identity of four species of Rhopalocera described by Johannes Gistel in 1857 121

HERING, Dr. Martin. Vier neue Altweltliche Limacodiden (Lep.) 85

HILLE RIS LAMBERS, D. New English Aphidae (Hem.) 114

HINTON, Howard E., B.Sc., F.R.E.S. New American Histeridae (Col.) . . . 57

,, ,, Notes on the Dryopoidea (Col.) 169

HOOD, J. Douglas, Ph.D. A note on Heterogony in the Thysanoptera, with descriptions of two new species from Tanganyika 193

,, ,, The Thysanopterous genus *Actinothrips* 247

JAMES, H. C., B.Sc., Ph.D., F.R.E.S. New Coccidae (Hem.) from Kenya . . 233

LE PELLEY, Richard H., F.R.E.S. The common coffee mealy-bug of Kenya (Hem. Coccidae) 185

LINSLEY, E. Gorton. New species of Neotropical Longicorn beetles . . . 109

MACFIE, Dr. J. W. S. Ceratopogonidae (Dipt.) from the River Amazon . . . 49

,, ,, A Correction 89

,, ,, A new Ceratopogonid (Dipt.) from British Guiana 265

MALLOCH, John R. The North American species of the Dipterous genus *Microsania*, Zett. 65

MARSHALL, Sir Guy A. K., F.R.S., F.R.E.S. Four new Derelominae (Col. Curc.) . 137

MÉQUIGNON, A. Notes sur le genre *Pseudochelonarium*, Pic (Col., Dryopidae) . . 66

MUNRO, H. K., B.Sc., F.R.E.S. Some interesting new African Trypetidae (Dipt.) . 4

OHAUS, F. A new species of *Anomala* (Col. Rutelidae) from Burma . . . 153

PEARMAN, J. V., F.R.E.S. Two remarkable Amphientomids (Psocoptera) . . 134

PLAVILSTSHIKOV, N. N. Note sur *Purpuricenus indus*, Sem. (Col., Cerambycidae) . 189

PRIESNER, Dr. H. Neue Exotische Thysanopteren 125

RICHARDS, O. W., M.A., D.Sc., F.R.E.S. Two new parasites of Aculeate Hymenoptera from Trinidad 131

,, ,, A note on the genus *Pachyophthalmus*, B. & B. (Dipt. Tachinidae, Miltogramminae) 209

ROHDENDORF, B. B. Eine neue Dolichotachinid—Art aus Sud Rhodesien (Dipt., Sarcophagidae) 143

SAYLOR, Lawrence W. New South American Melolonthids (Col.) 206

,, ,, New species of *Trichillum* (Col.: Copridae) 207

SCHEDL, Karl E. New Barkbeetles and Ambrosia-beetles (Col.) 270

SCHUSTER, Adrian. Die Gattung *Asidoblaps*, Fairm. (Col., Tenebr.) . . . 161

SPAETH, F. Die afrikanischen Arten der Gattung *Callispa* (Col.) 255

TAKAHASHI, Dr. R. Three new Aphids of the genus *Thoracaphis*, Van der Goot (Hem.) 86

TAMS, W. H. T., F.R.E.S. A remarkable new African moth belonging to the family Saturniidae 97

,, ,, A new African species of *Opisthodontia* (Lep., Lasiocampidae) . . 192

TONGYAI, C., F.R.E.S. A new genus and two new species of Buprestidae (Col.) from Siam 141

VINSON, J. New species of Carabidae (Col.) from Mauritius 261

WILKINSON, D. S., F.R.E.S. On some Braconids (Hym.) 71

,, ,, Two new *Apanteles* (Hym. Braconidae) 266

WILLEMSE, C. Some new Acridiodea (Orth.) from the Solomon Islands . . . 165

ZEUNER, Friedrich E., Ph.D. The recent and fossil Prophalangopsidae (Saltatoria) . 102

INDEX 277

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VOLUME 4. 1935.

NOTES ON SEVENTEEN GENERA OF RHOPALOCERA

By FRANCIS HEMMING, C.B.E., F.R.E.S.

THE following notes have been made in the course of recent work.

(a) *Twelve genera of which the types are here fixed for the first time.*

SATYRIDAE.

Dichothyris, Karsch, 1893, Berl. ent. Z., **38** : 203.

TYPE = *Mycalesis sambulos*, Hew., 1877.

Though valid nomenclatorially, the name *Dichothyris*, Karsch, is not required, as *sambulos*, Hew., is congeneric with *evadne*, Cram., the type of *Mycalesis*, Hb.

Celebina, Fruhstorfer, 1898, Ent. Ztg., Stettin, **59** : 263.

TYPE = *Celebina inga*, Fruhst., 1898.

Though valid nomenclatorially, the name *Celebina*, Fruhst., is not required, as *inga*, Fruhst., is congeneric with *evadne*, Cram., the type of *Mycalesis*, Hb.

Magula, Fruhstorfer, 1911, in Seitz, Grossschmett. Erde, **9** : 313.

TYPE = *Zophoessa jalaurida*, de Nic., 1880.

The name *Magula*, Fruhst., is invalid, as it is a homonym of *Magula* (Megerle MS.), Scudder, 1882 (Nomencl. zool. **1** Suppl. List : 200), a name to which Scudder gave a status by making it a synonym of *Trochus*, Linn., 1758. The name *Magula*, Fruhst., does not need replacing, as its type (specified above), *jalaurida*, de Nic., is congeneric with *europa*, Fab., the type of *Lethe*, Hb.

AMATHUSIIDAE.

Ategana, Stichel, 1906, Gen. Ins., **36** : 10.

TYPE = *Papilio phidippus*, Linn., 1763.

The name *Ategana*, Stich., was proposed for a subgenus of *Amathusia*, Fab., and the author placed in it *phidippus*, Linn., the type of *Amathusia*, Fab. The type of *Ategana*, Stich., is, therefore, *phidippus*, Linn., in accordance with Article 9 of the International Code. *Ategana*, Stich., is, therefore, a synonym of *Amathusia*, Fab.

Syntegana, Stichel, 1906, Gen. Ins., **36** : 12.

TYPE = *Amathusia virgata*, Butl., 1870.

The name *Syntegana*, Stich., was proposed as a subgenus of *Amathusia*, Fab., and the author put in it *virgata*, Butl., and one other species. The above selection of *virgata*, Butl., as the type makes *Syntegana*, Stich., a synonym of *Pseudamathusia*, Honr., of which *virgata*, Butl., is also the type.

NYMPHALIDAE.

Solenites, Mabille, 1887, *in* Grandidier, Hist. phys. nat. polit. Madagascar, **18** Lep. 1 : 82.

TYPE = *Acraea igati*, Boisd., 1833.

The name *Solenites*, Mab., is thus a synonym of *Acraea*, Fab., as well as a homonym of *Solenites*, Gesner, 1758 (Tract. Petref. : 39).

Phanopeltis, Mabille, 1887, *ibid.*, Lep. 1 : 84.

TYPE = *Acraea ranavalona*, Boisd., 1833.

The name *Phanopeltis*, Mab., is thus a synonym of *Acraea*, Fab., the types of the two genera, *ranavalona*, Boisd., and *horta*, Linn., being congeneric.

Aphanopeltis, Mabille, 1887, *ibid.*, Lep. 1 : 85.

TYPE = *Papilio horta*, Linn., 1764.

The name *Aphanopeltis*, Mab., thus falls as a synonym of *Acraea*, Fab., of which also *horta*, Linn., is the type.

Sykophages, Martin, 1903, Deuts. ent. Z., Iris, **16** : 81.

TYPE = *Papilio thyonneus*, Cram., 1779.

Martin proposed this name as a subgenus of *Cyrestis*, Boisd., and placed in it *thyonneus*, Cram., the type of *Cyrestis*, Boisd. The type of *Sykophages*, Martin, is, therefore, *thyonneus*, Cram., in accordance with the provisions of the International Code. *Sykophages*, Martin, is, thus, a synonym of *Cyrestis*, Boisd.

RIODINIDAE (= ERYCINIDAE).

Hyporion, Röber, 1903, Ent. Ztg., Stettin, **64** : 357.

TYPE = *Emesis princeps*, Oberthür, 1886.

Though valid nomenclatorially, the name *Hyporion*, Röber, is not required, as its type (selected above), *princeps*, Oberthür, is congeneric with *tamerlana*, Staudinger, the type of *Polycaena*, Staudinger.

Talites (Boisduval MS.), Capronnier, 1874, Ann. Soc. ent. Belg., **17** : 20.

TYPE = *Papilio meris*, Stoll, 1781.

The above selection of *meris*, Stoll, as the type makes *Talites*, Capronnier, a synonym of *Lasaia*, Bates, [1868], of which also *meris*, Stoll, is the type.

PAPILIONIDAE.

Panosmia, Wood-Mason & de Nicéville, 1886, J. asiat. Soc. Beng., Pt. 2, **55** (4) : 374.

TYPE = *Papilio dasarada*, Moore, 1857.

As *dasarada*, Moore, and *polydorus*, Linn. (the type of *Polydorus*, Swainson, 1833) are congeneric, the above fixation of *dasarada*, Moore, as the type of *Panosmia*, Wood-Mason & de Nicéville, makes that name a synonym of *Polydorus*, Swainson.

(b) *Notes on two unnecessary generic names.*

SATYRIDAE.

Neominois, Scudder, 1875, Bull. Buffalo Soc. nat. Sci., **2** : 241.

The genus *Neominois*, Scudd., was erected by Scudder for *Satyrus ridingsii*, Edw., 1865 (which Scudder specified as its type), at a time when the relationship

of the allied palaearctic species was very imperfectly understood. There are, however, no characters by which *ridingsii*, Edw., can be separated generically from *Papilio autonoe*, Esper, which was fixed as the type of *Eumenis*, Hübner, [1818], (Verz. bekannt. Schmett. (4) : 58) by Grote in 1873 (Canad. Ent., **5** : 62). The name *Neominois*, Scudd., must, therefore, be sunk as a synonym of *Eumenis*, Hb.

Cercyonis, Scudder, 1875, Bull. Buffalo Soc. nat. Sci., **2** : 241.

The genus *Cercyonis*, Scudd., was erected for *Papilio alope*, Fab., 1793, which Scudder specified as its type. That species cannot, however, be separated generically from *Papilio dryas*, Scopoli, 1763, the type of *Minois*, Hübner, [1818], (Verz. bekannt. Schmett. (4) : 57). The name *Cercyonis*, Scudder, must, therefore, be sunk as a synonym of *Minois*, Hübner.

(c) *Three new generic names.*

Lycaenidae.

Arletta, gen. n.

Generic characters.—I select as the generic characters of *Arletta*, Hemming, the characters given by Toxopeus for *Moorea*, Toxopeus, 1927 (Tijdschr. Ent., **70** : 255).

Type = *Arletta vardhana* (Moore, 1874) (= *Polyommatus vardhana*, Moore, 1874).

Chapman (1909, Proc. zool. Soc. Lond., **1909** : 424) doubtfully associated *vardhana*, Moore, with *bieti*, Oberthür, which is the type of *Neocheritra*, Chapman (1908, Proc. zool. Soc. Lond., **1908** : 677). Toxopeus (1927) pointed out that this association was not possible and proposed the name *Moorea*, Toxopeus, for *vardhana*, Moore. That name is, however, invalid, as it is a homonym of *Moorea*, Jones & Kirby, 1869 (Ann. Mag. nat. Hist., (4) **3** : 225). The name *Arletta*, Hemming, is, therefore, here proposed as a substitute for *Moorea*, Tox.

Pamela, gen. n.

Generic characters.—I select as the generic characters of *Pamela*, Hemming, the characters given by de Nicéville for *Listeria*, de Nic., 1894 (J. asiat. Soc. Beng., Pt. 2, **63** (1) : 35).

Type = *Pamela dudgeoni* (de Nic., 1894) (= *Listeria dudgeoni*, de Nic., 1894).

The name *Pamela*, Hemming, is proposed since *Listeria*, de Nic., is invalid, being a homonym of *Listeria*, Robineau-Desvoidy, 1863 (Hist. nat. Dipt. Paris, **2** : 600).

Hesperiidae.

Yvretta, gen. n.

Generic characters.—I select as the generic characters of *Yvretta*, Hemming, the characters given by Lindsey, Bell, and Williams, 1931 (J. Sci. Lab. Denison Univ., **26** : 78) for *Chaerephon*, Godman & Salvin, 1900 (Biol. cent.-Amer. Lep. Rhop., **2** : 462, 474).

Type = *Yvretta citrus* (Mab., 1889) (= *Pamphila citrus*, Mab., 1889).

The name *Yvretta*, Hemming, is proposed, as *Chaerephon*, Godman & Salvin, is invalid, being a homonym of *Chaerephon*, Dobson, 1878 (Cat. Chiropt. B.M. : 431).

SOME INTERESTING NEW AFRICAN TRYPETIDAE (DIPT.)

By H. K. Munro, B.Sc., F.R.E.S.

Afreutreta chirindana, sp. n.

A beautiful large species that differs from others in the genus by the peculiar wing-pattern.

Length of body, 6·4 mm.; of wing, 7·1 mm. *Head*, length 2·5, width 4, height 3: pale yellow; occiput moderately prominent below, orbits flattened, yellow with some small black setulae among them; *fronsa* a little longer than wide and slightly narrowed in front, with scanty, light-brownish pubescence, bristles blackish, 4 *i.or.*, 2 *s.or.*, *oc.* strong, *vt.* a little longer than height of head its alveolus prominent and so raised behind that it faces fore-side, thus the bristle next directed forward but bending sharply backwards; alveolus of anterior *i.or.* also prominent; *lunule* moderate; *antennae* short, to middle of face, second joint large, with black setulae, third small, barely larger than second, arista pubescent; *face* flat, cheeks and genae narrow; oral opening moderate, proboscis and palpi short, yellow.

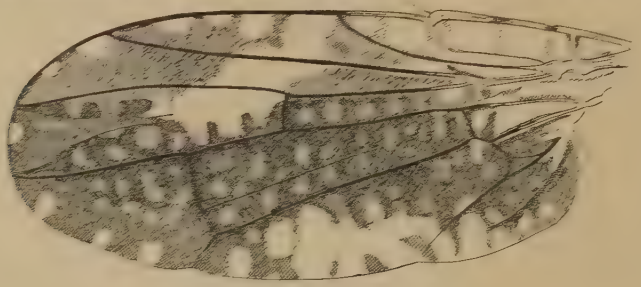


Fig. 1.—*Afreutreta chirindana*, sp. n.

Thorax brownish above, middle of dorsum blackish, on sides and below yellow, but somewhat blackened, the pleura having a blush tinge; rather sparse white pubescence on dorsum; bristles normal, blackish, only *npl.* whitish, *dc.* a little behind suture; two *mpl.*, the lower weak. *Scutellum* brown, flat, with four bristles, the apicals a little shorter. Halteres yellow, knob blackish. Post-scutellum and mesopleurama black with grey dust. *Legs*, normal, coloured as pleura. *Wing* fig. 1, large, evenly oval, cross-veins rather broad, upper cross-vein twice its length from lower; third vein with six small setulae from base for two-fifths distance to upper cross-vein and seven above middle portion of first posterior cell. There is a broad opaque blackish band along the wing from apex to base below the third vein, above this area the pattern is yellowish and the hind margin is paler blackish: there is a conspicuous oblique hyaline area from end of cubitus to inner half of first posterior cell, and another, not quite so marked, along hind margin, mostly in the third posterior cell: the spots around the wing-margin are hyaline, those in first posterior cell yellowish-subhyaline and on the rest of the dark band, blackish-subhyaline: the edges of all the spots are more or less undefined. *Abdomen* rather short, more or less blackish-yellow, hind margins of second, third and fourth segments with definite yellowish margins, and of fifth segment the hind half yellowish: pubescence thicker than on thorax. Venter yellowish, base blackish and fifth sternite black; genitalia yellowish.

Type ♂, S. Rhodesia: Chirinda Forest, Oct. 1926 (*Dr. G. Arnold*). In British Museum.

Afreutreta **bevisi,** sp. n.

A rather small dark species. The wings are moderately broad and dark with numerous small subhyaline spots. They differ from those in other recorded species of *Afreutreta* in having a complete hyaline band across the outer third. The head is short and the fronto-facial line more perpendicular and there are no dark spots at the sides of the antennae.

Length of body, 4·2 mm.; of wing, 3·5 mm. *Head*, length 4, height 6, width 7; brownish-yellow; *occiput* darker brown, concave above, barely prominent below, bristles white, flattened, with some short brown setulae; *frons* about as long as wide and slightly narrowed to antennae, flat and strongly sloping thus the fronto-facial angle not prominent, a few thickened whitish hairs anteriorly, upper of two *s.or.* white, two *i.or.*, *oc.* as strong as *i.or.*, ocellar dot black; *lunule* large, broadly emarginate behind; antennae about half length of face, third joint rounded at end, second with some black setulae, arista with yellow base blackish, flagellum bare; *face* flat, short, epistome not prominent, cheeks narrow, one-third width of, and genae as wide as, third antennal joint; hairs and setulae on lower parts of head brown; oral opening moderate, rounded; proboscis short (retracted with palpi in specimen). *Thorax* brown, with brown dust and white pubescence; on dorsum faint median, dorso-central and lateral darker stripes; bristles black, *dc.* on line of *a.sa.*, 2 *mpl.* and a row of three slighter bristles below, two *pt.*, one *st.* *Scutellum* coloured as thorax, flattened, broadly rounded at end, four bristles; mesophragma somewhat shining. Halteres brown. *Legs* brown, rather short, femora thickened, first pair more so, with row of strong bristles below. *Wing* brown with numerous small hyaline to subhyaline spots, larger in discal and third posterior cells, stigma blackish, a conspicuous white-hyaline bar from costa just beyond midway between ends of first and second veins to hind margin a little outside end of fifth vein; third vein bristly to beyond upper cross-vein. *Abdomen* brown, with rather slight brown dust and black to brown, fine, pubescence. Sixth segment a little shorter than fifth. Base of ovipositor short, about as long as fifth segment, shining brown, bare, flattened in type specimen.

Type, ♀, Natal: Umbilo, Durban, 7.x.19 (*A. L. Bevis*).

Gymnosagena, gen. n.

A curious genus of which it is somewhat difficult to decide the relationships. It is characterised by the shining black abdomen, moderately grey-dusted thorax, single *s.or.* and reticulate wing-pattern. A more detailed discussion is given under the following new species, which is the genotype.

Gymnosagena unicornuta, sp. n.

In some respects the species to which this may be allied are *binaria*, Lw., *quaternaria*, Bez., *quinaria*, Bez., and *senaria*, Bez., species placed in *Spheniscomyia* by Bezzi, but which may perhaps be included in *Parasphenisicus*, Hend. With these it agrees in the shining black abdomen and single *s.or.*; in the more grey-dusted thorax it approaches species of *Tephrella* and *Spathulina*, but the reticulate wing-pattern separates it from both groups. It is thus difficult to decide the sub-family grouping. The fifth and sixth segments of the abdomen in the female are equal, but in the species of *Spheniscomyia* (or *Parasphenisicus*) mentioned above this is also the case, with a tendency for the sixth to be the longer, but Hendel places *Parasphenisicus* in his Trypetinae. On the other hand, if the present new species is located in Hendel's Tephritinae, it would seem to come between the Tephritini and Tephrellini, with preference towards

the latter owing to the shining black abdomen. It hardly seems that any relationship is shown either to *Ensina* or *Actinoptera* by the single *s.or.*, nor to the former by the reticulate wing-pattern.

Length of body, ♂, 2·3 mm., ♀, 2·9 mm.; of wing, ♂, 2·4 mm., of ♀, 2·6 mm. *Head*, length 4, height 5, width 6; *occiput* black, very slight greyish dust, yellow on lower edge, moderately convex with moderate saucer-like depression on upper portion, lower swellings not marked, bristles whitish; *frons* flat, bare, as long as width at vertex, one third narrower at antennae, and two and a half times width of eye, deep yellow, orbital margins whitish, rather less so along vertex and around black ocellar dot; bristles black, *oc.* long, 2. *i.or.*, 1 *s.or.*; *lunule* short, whitish; *eye* in profile large, rounded oval; *antennae* nearly as long as face, second joint honey-yellow, third reddish-yellow, twice as long as wide, upper edge straight, apex rounded, arista brownish, short pubescent; *face* flat, yellow, epistome slightly prominent, cheeks and genae whitish, former narrow, almost linear, latter three-fourths width third antennal joint; palpi yellow; proboscis yellow, labellae elongate, about as long as palpi; mouth-opening larger, rounded. *Thorax* black, with fairly thick whitish dust and rather sparse white pubescence; bristles normal, black, *dc.* a little behind suture. *Scutellum* short, with a pair of long black basal bristles. *Legs* yellow, in male proximal two-thirds of femora blackened, of hind pair most so, in female only middle femora slightly blackened outwardly and hind femora moderately so on inner and outer sides. Halteres yellow. Squamae yellow. *Wing*: venation normal; base hyaline, stigma black, otherwise with pale reticulate pattern (very much like that of *Paroxyna sororcula* (Wd.)) darkened a little below stigma, at end of sub-marginal cell and over lower cross-vein. *Abdomen* shining black, only extreme base slightly grey-dusted; pubescence black, short, longer and whitish on hind edges of segments and on sides, a pair of sub-median black bristles on hind margin of sixth segment; in female fifth and sixth segments equal in length; venter paler; base of ovipositor shining black with black pubescence, short, about as long as last two segments together, broad, flattened, with wide apex; male genitalia black.

Type, ♂ and ♀, 6 ♂♂ and 5 ♀♀ paratypes, reared from puparia in flowers of *Nidorella resedefolia*, S. Rhodesia: Mazoe, August 1932 (*W. K. Ford*). (Types in author's collection, a pair of paratypes in British Museum.)

Trypanea **lamborni,** sp. n.

Allied to *Trypanea woodi*, having a similar wing-pattern except for the absence of the upper ray of the apical fork. Owing to this it runs to *Trypanea mutila*, Bez., in Bezzi's 1924 tables, but the latter has no yellow area over the upper cross-vein: *mutila* differs too in other details of the pattern. The scutellum is yellow with the base more or less blackish above as in *mutila*, but in *woodi* it is black. The pubescence on the dorsum of the thorax is white, shining silvery, in *woodi* light brownish, golden shining, in *mutila* more yellowish and less shining.

Length of body, ♂, 4·8 mm., ♀, 5·0 mm.; of wing, ♂, 4·2 mm., ♀, 4·8 mm. *Head* normal, yellow; *occiput* black centrally; *frons* brownish anteriorly with slight pale pubescence; bristles normal, 2 *s.or.* the upper white, 3 *i.or.* the lowest small and white; *antennae* about two-thirds length of face; proboscis short. *Thorax* black with thick grey dust and white, silvery shining pubescence, humeri to wing-base yellowish; scutellum yellow, blackish at base; bristles normal, blackish, *dc.* just behind suture, four scutellars, the apicals short. *Legs* and halteres yellow. *Wing* normal, stigma hyaline; usual apical pattern, upper ray of apical fork absent, only a spot on costa, lower complete, two rays across second posterior cell and one along lower cross-vein, a short ray into end of discal cell, a brownish area over upper cross-vein brokenly extended towards stigma, base of wing quite hyaline. *Abdomen*,

in ♂ black, largely reddish-yellow on first and second segments and hind margins of others with yellow edge, in ♀ more extensively yellowish; with grey dust and white pubescence; venter and male genitalia mostly reddish-yellow; base of ovipositor as long as segments 1 to 5 together, reddish-yellow, black at base and at extreme tip, pubescence rather long, white silvery shining on anterior half, brownish and not so shining on hind half.

Type, ♂ and ♀, and 7 paratypes, NYASALAND: Maiwale, 8.v.32 (*Dr. W. A. Lamborn*), No. 1291, puparia in flower of a Composite. Types in British Museum, one pair paratypes in author's collection.

Tephrella **austeni,** sp. n.

A species that appears closely allied to *Tephrella katonae*, Bez., 1924, of which I have seen the type. The species agree in having the femora black, but differ in the wing-pattern. In *katonae* there are, in the second posterior cell, two rather small hyaline indentations and a small hyaline spot near the outer end, while in *austeni* there are two strong indentations, the inner extending from wing-margin to the fourth vein, the outer across the first posterior cell as well and touching the third vein.

Length of body, ♂, 2·9 mm., ♀, 3·2 mm., of wing, both sexes, 3·2 mm. *Head*, length 4, height 5, width 7 (in female slightly wider than in male); *occiput* black, very slightly grey-dusted, flat, not prominent below, bristles black; *frons* about a quarter longer than wide, narrower in male, bare, hind third and orbits broadly blackish, otherwise dark yellow, bristles black, 2 *s.or.*, 2 *i.or.*, *oc.* moderate. *Lunule* short. *Antennae* dull blackish-yellow, about ⅔ length of face, third joint rounded at end with rather long pubescence above which appears as a fringe on top in profile. *Face* dull blackish-yellow, slightly concave and

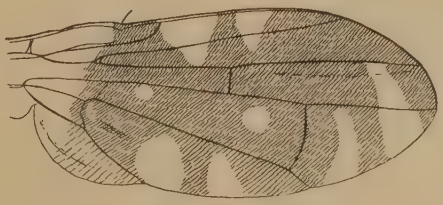


FIG. 2.—*Tephrella austeni*, sp. n.

epistome a little prominent, oral opening rounded. Palpi and proboscis yellow, the latter short. Cheeks and genae narrow. Eyes in profile large, rounded. *Thorax* and scutellum, shining black with very slight grey dust and slight pale brownish pubescence on dorsum. Bristles blackish-brown, *dc.* half-way between line of *a.sa.* and suture, two long basal scutellars. *Legs*: femora and proximal half of hind tibiae black, otherwise yellow. *Halteres* yellow (rather blackish in specimen). Wing (fig. 2) with *Aciura*-like pattern, base yellow-hyaline; third vein bare. *Abdomen* shining black with black pubescence, in ♂ some grey dust is apparent when viewed obliquely from in front. In ♀ 5th segment about three-fifths longer than 6th. Base of ovipositor black, with black pubescence, as long as last three segments of pre-abdomen, flattened in specimen.

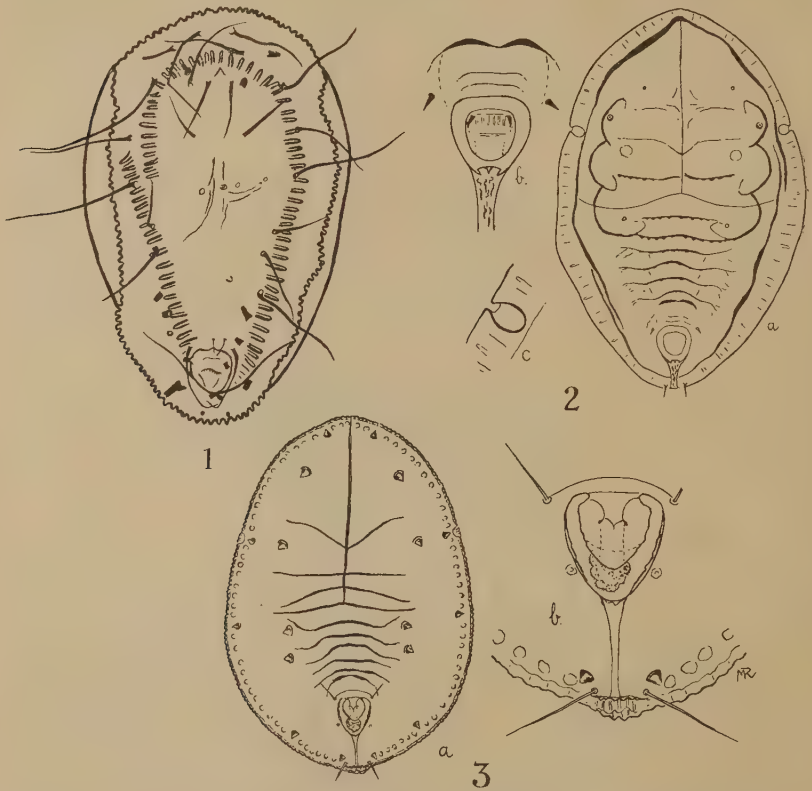
Type, ♂, SIERRA LEONE: Freetown, 26.viii.1899; type, ♀, 5.ix.1899 (*E. E. Austen*). In British Museum.

THREE NEW ALEURODIDS (HEM.)

By G. H. Corbett, B.Sc., F.R.E.S.

Aleurocanthus **punjabensis,** sp. n.

The appearance of pupa case on leaf unknown, after clearing transparent. Margin apparently serrate : shape of teeth not distinct in the specimen. About eleven teeth to 0·1 mm. In submarginal area, a conspicuous ring of sutures about 0·07 mm. from the margin and about 0·023 mm. wide; eight sutures occupy about 0·1 mm. On or about this ring, nine pairs of long spines, some being represented only by their bases, are distributed



Figs. 1–3.—1. *Aleurocanthus punjabensis,* sp. n., pupa case; 2. *Aleurolobus citrifolii,* sp. n., *a.* pupa case, *b.* vasiform orifice, *c.* tracheal pore; 3. *Trialeurodes mossopi,* sp. n., *a.* pupa case, *b.* vasiform orifice and caudal fold of case.

around the case. In addition, two long pairs are situated anteriorly in the submarginal area and another pair latero-posteriorly to the vasiform orifice in the submarginal area. The characters of the mid-dorsal area of the abdomen are not distinct; on the cephalo-thorax, three pairs of moderately long spines are present. A thin long pair of spines near anterior

lateral and another pair near posterior margin of vasiform orifice complete the arrangement of spines.

Vasiform orifice subcordate with a pair of minute spines situated anteriorly. Operculum similar in shape.

Length, 0·58 mm.; breadth, 0·42 mm.

Host. Citrus.

Locality. Punjab: Lyallpur.

This species has been described from one specimen which was found amongst material consisting mostly of *Aleurocanthus woglumi*, Ashby. The specimen is somewhat misshapen, and the position of some of the spines, a few of which are represented by their bases, is not always definable, but the ring of sutures in the submarginal area undoubtedly separates *Aleurocanthus punjabensis* from described species of *Aleurocanthus*.

Aleurolobus **citrifolii,** sp. n.

Pupa case, dull black, on upper surface of leaf, without apparent marginal secretion. On clearing, it becomes brownish. Shape elliptical, slightly pointed anteriorly and posteriorly. Mid-thoracic and transverse sutures reaching submarginal suture. Margin very finely crenulate, almost entire; submarginal area with about eighty papillae, just reaching margin around case. Thoracic tracheal folds large, oval, without sculpture and reaching the submarginal suture; tracheal pore without teeth. Caudal furrow distinct with irregularly-shaped linear markings and ending on margin without apparent teeth. Thoracic and abdominal segments distinct, their sutures with prominent chitinised thickenings. Dorsal disc without dorsal tubercles but covered with irregular striae and crowded with minute transparent spots. Eye-spots subcircular with a dark central area.

Vasiform orifice subcordate with anterior margin rounded, outer posterior margin notched and bearing in the middle a small pointed tubercle. The wall of vasiform orifice with small brownish pigmented spots. Operculum generally subcordate, posterior extremity sometimes truncated, anterior portion with distinct sutures. Lingula concealed. The trilobed area around vasiform orifice not defined. The dorsum bears four pairs of spines situated as follows, one pair anteriorly in cephalo-thorax, another near third pair of legs, another latero-anteriorly to vasiform orifice and the fourth posteriorly, near termination of caudal fold. (The three first-mentioned pairs in all specimens represented by their bases.)

Length, 0·56 mm.; breadth, 0·36 mm.

Host. Citrus.

Locality. Punjab: Lyallpur.

This species differs from a typical *Aleurolobus* in possessing a well-defined tracheal pore area, which is not armed with teeth, and in the absence of a palmate area around the vasiform orifice.

Trialeurodes **mossopi,** sp. n.

Pupa case on undersurface of leaf, yellowish, elliptical and raised from the leaf by a palisade of white wax. Around its margin is a ring of closely-set filaments and from its dorsum long white waxy filaments are prominent.

Empty cases are whitish and become transparent after clearing. Margin crenulate: submargin with a ring of about eighty small conically-shaped papillae and with five larger pairs, one anteriorly, one near thoracic fold, and three pairs in the abdomen, the last pair near termination of caudal fold. Thoracic pore merely indicated by 3–4 small but defined teeth and the fold by an inconspicuous subcircular porous looking area. Subdorsum with four prominent pairs of conically-shaped papillae, two on the cephalo-thorax and two near

first and second abdominal segments. (In one mounted specimen, anteriorly to vasiform orifice, a pair of somewhat similarly shaped papillae is present.) Vasiform orifice subcordate with inner margin toothed and with a projection from outer posterior margin: operculum subcordate, about half filling the orifice and exposing the lobed lingula. Caudal fold, narrow and armed with a pair of spines near its posterior extremity, terminates at margin in about 5 inconspicuous teeth.

Length, 0·70 mm.; breadth, 0·50 mm.

Host. Haricot Beans.

Locality. S. Rhodesia: Salisbury (*M. C. Mossop*), 11 May, 1932.

This species, which has been described from spirit material, resembles *Trialeurodes rara*, Singh, but differs essentially in the number and position of the subdorsal papillae.

NEW BEES FROM TRINIDAD

By T. D. A. Cockerell, F.R.E.S.

(*University of Colorado.*)

Recently Mr. D. Vesey FitzGerald, of Haslemere, sent me several bees lately collected in Trinidad, none of which could be matched with anything in the British Museum. They all prove to be new, and are herewith described. The specimens will all be placed in the British Museum.

Parammobates batesi **veseyi,** subsp. n.

♀. Length about 11 mm., expanse about 21·5 mm., the wings very long for the size of the insect; general aspect like some of the African bees of the genus *Morgania*, but having affinities with the *Epeolus* group. Black, including clypeus, labrum, mandibles and legs (ends of tarsal joints reddish, and apical joint dusky red), but tegument of tergites dark bluish, suffused with purple; metathorax (except a median line) and basal half of first tergite densely clothed with silvery-white tomentum, but the insect, seen from above, otherwise without markings; eyes large, dark brown; facial quadrangle much longer than broad, the orbits parallel; sides of face with silvery-white hair; clypeus and supraclypeal region with a shining keel; labrum quadrate, with white pubescence, the apex with two small teeth; front dull, minutely and densely punctured, but a polished area at each side of the large ocelli; flagellum long, brownish beneath, with fine yellowish pruinose pubescence; third antennal joint reddened in front; cheeks with white pile; upper border of prothorax with a line of dense white hair, not extending to tubercles; mesothorax dullish, very densely punctured; scutellum dull, strongly bilobed; axillae shining, produced into long stout spines; under side of thorax with silvery pile; tegulae large, black, finely punctured; wings basally hyaline, but more than apical half fuliginous, strongly coppery and golden; stigma well developed, black; basal nervure going far basad of nervulus; a hyaline streak across the three cubital cells; second cubital cell much smaller than first, narrowed about one-half above, receiving first recurrent nervure near end; third cubital cell receiving second

recurrent nervure about the same distance from end; legs long and slender; spurs light red; greater part of the large hind coxae covered with dense silvery-white pile; hind tibiae and basitarsi with silvery pile, suffused with reddish on inner side of basitarsi; abdomen broad and short, finely punctured, with five visible tergites; apical tergite with brown tomentum in middle, and a strong keel on each side of median area; down the middle is a fine groove; venter with white pile.

Trinidad. Sept. 16, 1933 (2394). From *P. brasiliensis*, Friese, the type of the genus, it is easily known by the entirely black head, coppery wings and other characters. From *P. batesi* (Ckll.), described from Ega, Brazil, it differs by the dark tarsi and strongly metallic abdomen, but it is so closely allied that I treat it as a subspecies. *P. batesi* was described (1916) under *Odyneropsis*, but it goes better in *Parammobates*. From the description, *Odyneropsis columbiana*, Schrottky, 1920, would appear to be closely related to *P. brasiliensis*, Friese.

Collector's note.—This bee was only taken on one occasion when a few individuals were noticed flying along a bank at nearly 3000 ft. up on Mount Tuguche.

Rhathymus **trinitatis,** sp. n.

♀. Length about 18 mm., anterior wing 15; entirely black except that the short malar space, and a band in middle of mandibles are reddish, and the scape has a red spot at extreme base; the thick flagellum, from the fourth antennal joint to apex, is pruinose with very fine, slightly brownish hair; sides of face and of lower part of front with dense appressed white hair; prothorax above with a broad band of white hair, interrupted in middle; tubercles fringed with grey hair; mesothorax with two broad longitudinal bands of greyish-white hair, narrowing and evanescent anteriorly, and abruptly narrowing on inner side near hind end; each side of metathorax with a fringe of light hair; mesopleura with a patch of white hair; coxae and trochanters with more or less white hair, and tarsal joints with reddish hair at apex on inner side, the brush of short hair on inner side of hind basitarsi chocolate-colour; abdomen with a small patch of silvery-white hair at each side of apex of first two tergites, but not very conspicuous; shining; labrum large, rugose, with a large smooth depression on upper middle; tongue very long; maxillary palpi apparently absent; clypeus finely punctured, with a shining median keel on lower half; a strong keel between antennae; ocelli large, very close together, in a slight curve; more than anterior half of mesothorax with a median keel; axillae not produced; scutellum highly polished, bigibbous; area of metathorax very large, triangular; tegulae large, black, with pale hair anteriorly; wings entirely rather dilute fuliginous, without any bright tints; stigma small; basal nervure going a little basad of nervulus; second cubital cell very broad, narrower above than below, receiving first recurrent nervure very near end; third cubital about as broad as second, bulging outwardly, receiving second recurrent a moderate distance from end; legs long and slender; spurs dark, spur of middle tibia long, acutely pointed, simple; abdomen shining; apical plate narrow.

Trinidad, Oct. 1933. Bred from a stout brown cocoon about 18 mm. long, apparently belonging to some Euglossine bee. Related to *R. ater* (Sm.) and *R. michaelis*, Friese, but distinguished by the entirely black flagellum and clypeus, lack of any bluish tint on abdomen, and other characters. It is much smaller than *R. michaelis*. The specimen is numbered 2489.

Collector's note. –A single specimen of this species was reared from a cell of *Epicharis fasciata trinitatis*. Cells containing pupae of this species were recognised by the brown silken lining. The meloid beetle *Tetronyx pectoralis*, Mg. (det. K. G. Blair), was also parasitic on the same *Epicharis*.

Epicharis fasciata **trinitatis,** subsp. n.

♀. Length about 19 mm., anterior wing 15, width of abdomen 7·3 mm.; labrum much longer than broad, with a median keel; mandibles with a large bright red mark before apex; no light face-marks; antennae entirely shining black; malar space covered with pale tomentum; cheeks with dense greyish-white hair, vertex with long black hair; hair of thorax very short and mostly black or dark brown, distinctly brown on tubercles; on mesothorax, except anteriorly, it appears pale grey or whitish in lateral view, and it is similarly grey on mesopleura; at sides of metathorax it is brownish, but it is coarse and black on the hind part of scutellum and behind wings; wings black, shining violaceous; basal nervure meeting nervulus; second cubital cell very broad, receiving first recurrent nervure a short distance beyond middle; spur of middle tibia very stout, with a hook-like end; hair on outer side of hind tibiae and basitarsi clear light ferruginous; abdomen shining, but not highly polished; first tergite all black; tergites 2 to 4 with large pale yellow lateral marks, that on 2 in the form of a broad vertical band; no discal marks on 2 or 3; 4 with two small discal marks; 5 dull pale yellow, with a black mark at middle of base, and a pair of transversely elongated sublateral marks; depressed apical part of 5 black, with a dense conspicuous, pale reddish fringe; apical plate broadly triangular, truncate, shining black; venter with coarse black hair in middle, and pale hair at sides.

Trinidad, Oct. 1933 (2475). Distinguished by the partly pale hair of thorax, markings of abdomen, and smaller size. It is probably a valid race, and not an individual variation. The type locality of *E. fasciata*, Lepeletier, is Rio de Janeiro.

The forms named *fasciata*, Lep., *affinis*, Smith, *quadrinotata*, Mocs., and *obscuricollis*, Friese, are all closely related and may have to be regarded as races or varieties of a single species. However, a specimen of *E. affinis* (from Maroni) now before me differs from *trinitatis* not in the conspicuous light hair of thorax and the abdominal markings, but in the malar space being conspicuously larger, naked and polished, and the mandibles having no red mark. The wings also are differently coloured, faintly rosy, not bluish-violet. These are surely specific differences.

Collector's note.—A colony of these bees was found inhabiting a sandy cliff bordering a trail across the Northern ranges (Maracas bay road from Santa Cruz). The bees were just emerging at the time, 1.x.33, the majority of the cells still containing pupae. Chiefly males were noticed flying around the colony, and it was noticed that there was greater activity in the early afternoon than in the early morning. The cells are brittle and easily broken.

Centris **rufosuffusa,** sp. n.

♂. Length about 21 mm., anterior wing 17·5; robust, black, with a yellow stripe on scape in front, labrum yellow (but with long black hair), cuneiform yellow lateral face-marks (the broad oblique base at level of top of clypeus), and yellow clypeus having two large oval black marks on upper part, a broken median red line (expanded to a spot between the black marks), and lower margin rather broadly red; suture at each side of clypeus black; mandibles with a rather small bright red patch at base of apical tooth; malar space linear, reddish; flagellum entirely black; hair of vertex, cheeks and front all black; mesothorax and scutellum polished on disc, the scutellum distinctly bigibbous; thorax above with short red hair, mostly dark red with a strong blackish suffusion, but at each anterior corner it is broadly very bright ferruginous; sides of thorax with brownish-red hair, blackish posteriorly, and becoming pale yellowish on underside; tegulae dark brown, broadly reddened externally; wings black, with strong bluish-green iridescence; by

transmitted light the wings are brown; basal nervure falling a little short of nervulus; second cubital cell receiving first recurrent nervure near base, the cell is produced and acute (on marginal nervure) apically; legs black, with long black hair; a long pencil of black hair at base of each claw; abdomen black, the apical part with black hair, long at sides, the second and third tergites with shining pale brown hair at apical corners, best developed on third, but inconspicuous; apical plate red at end, broadly truncate; venter with black hair. The disc of the clypeus is flattened and shining.

Trinidad, Nov. 1933 (2569). Allied to *C. derasa*, Lep., and *C. smithiana*, Friese, but distinguished by the mainly dark hair on thorax above and the evanescent pale bands of abdomen. Also, the wings are more brilliantly coloured.

Collector's note.—A large perennial colony of these bees was found by Mr. F. W. Urich in a sandy cutting at Point Radix on the E. coast of the island. No activity was noticed at the colony during frequent visits from March to October, but when visited on the 5th November, males were observed dashing to and fro about the nesting holes and females were excavating or bringing in pollen.

Xylocopa **submordax,** sp. n.

♀. Length about 23 mm., anterior wing 19·5; black, without metallic tints, pubescence entirely black; clypeus with very large well-separated punctures, but with a smooth median band; tooth on inner side of mandibles distinct; middle tubercle of labrum small and short; flagellum very obscurely brownish beneath; wings black, shining brilliant blue-green; scutellum flattened with a few scattered minute punctures, the posterior margin sharp; abdomen with first tergite quite closely punctured; ventral keel very strong.

The punctures of the clypeus readily separate it from what I have as *X. brasilianorum* (L.), and the wings are also quite differently coloured. What I have as *X. ordinaria*, Sm., has the clypeus more similar, but the wings differently coloured, the median tubercle on labrum longer and the scutellum not flattened. I examined Smith's type female of *X. ordinaria*; it has anterior wings 21 mm. long, very dark, shining purple and blue. The type of *X. carbonaria*, Smith, is much smaller, anterior wings 17 mm., but of the same colour. *X. carbonaria* has the middle tubercle of labrum nearly like the lateral ones; in *X. ordinaria* it is shorter and more elevated. *X. transitoria*, Pérez, agrees in the truncate scutellum, but the wings and other characters differ.

On the whole the present insect appears to come nearest to *X. mordax*, Smith, from San Domingo and Nevis; in that species the flagellum is rufo-testaceous beneath except at base, and the hind margin of the posterior wings is coppery. It may be a race of *X. mordax*, but Smith's description is too short. Maidl records as doubtful *X. mordax* from Argentina, Brazil and Mexico, but his material was probably of a different species. Ackerman (1916) stated that *X. mordax* was the same as *X. varipuncta*, Patton, but without any evident reason.

Trinidad, Nov. 1933 (2621). A smaller specimen, with the same number, the front-wing about 15 mm. long, appears to be the same species.

Collector's note.—This bee was very abundant on the island of Patos when a visit was made on 19.xi.33; it was working flowers of *Melochia tomentosa* (Sterculiaceae). Patos island is situated in the northern part of the Gulf of Paria, a few miles off the Venezuelan coast, but is a British island included under Trinidad. This species was not taken on the island of Trinidad itself.

ON FURTHER BLATTIDS (ORTH.) FROM CELEBES

By R. Hanitsch, Ph.D.

Professor Willy Ramme, of the Berlin University Museum, kindly sent me towards the end of last year (1933) a few Blattids from Celebes, taken by Mr. G. Heinrich in the years 1930–2, supplemental to those collected there by the same gentleman and described by me in 1933 *Verh. Naturf. Ges. Basel*. **44** : 119–150. Five of the 12 species of that second collection have proved new to science, whilst the other 7 species were recorded in my former paper.

I have also to add one species, described many years ago from Celebes, which I overlooked when preparing my former list, viz. *Hemithyrsocera* (*Thyrsocera*) *soror*, Brunner (1865, *Nouv. Syst. Blatt.*, p. 120) and two species which I recently discovered in the Oxford University Museum, viz. *Homopteroidea nigra*, Shelford, and *Miopanesthia discoidalis*, Saussure.

Shelford had described *Homopteroidea nigra* first from Sarawak and Sumatra (1906, *Trans. ent. Soc. Lond.*, **1906** : 274, pl. xvi, figs. 13 and 14), but I have recorded it since also from the Mentawi Islands (1928, *Bull. Raffles Mus.*, **1** : 37, and 1932, *Ann. Mus. civ. Genova*, **56** : 80) and from Kinabalu and the Malay Peninsula (1933, *J.F.M.S. Mus.*, **17** : 328). This species occurs in Celebes too, as the Oxford Museum possesses a specimen from Macassar, taken by Doherty in 1896.

Miopanesthia discoidalis, Saussure (1895, *Rev. suisse Zool.*, **3** : 326), was originally described from Java and Pondichéry, India. The Oxford Museum contains a ♀ example from Mt. Masarang, N. Celebes, 3000–4000 ft., taken by Charles Hose, October 1895, and determined by Shelford.

As the present collection contains several examples (♂ and ♀) of *Symploce* (*Ischnoptera*) *perpulchra*, Shelford, and as the original description was based upon a single ♀ only, I take the opportunity of re-describing the species below.

Ebnerella, nom. n.

I also wish to correct an error in my former paper. When proposing *Shelfordella* to take the place, with certain modifications, of *Shelfordina*, Hebard, I was unfortunately not aware that that name was pre-occupied, and that N. von Adelung had chosen it for another Blattid, with *Periplaneta tartara*, Saussure, as genotype (1910, *Hor. Soc. ent. ross.*, **39** : 329). I am indebted to Prof. R. Ebner, of Vienna, for kindly having pointed out the mistake to me, and with his permission I propose to substitute the name **Ebnerella** for *Shelfordella*.

The species which now come under *Ebnerella* are :

Phyllodromia terminalis, Brunner, from Borneo, the Malay Peninsula and Sumatra.

Neoblattella fusco-castanea, Hanitsch, from Sumatra.

Neoblattella latimarginata, Hanitsch, from the Mentawi Islands.

Neoblattella digitata, Hanitsch, also from the Mentawi Islands, and

Shelfordella uniformis, Hanitsch, from Celebes.

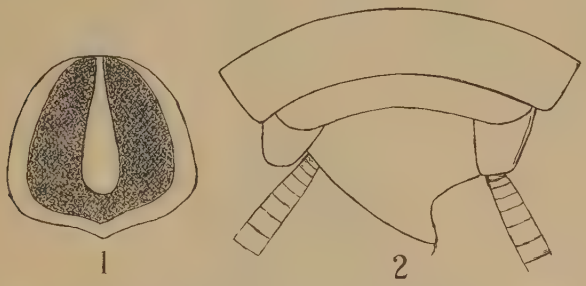
Anaplectoidea nitida, Shelford.

1 ♀ Bantimoeroeng, 25.v.1930.

Blattella **erythrocephala,** sp. n.

♂. Head free, orange-coloured, with a pair of darker orange spots both on forehead and face; palps black; base of antennae orange [remainder missing]; inter-ocular distance equal to $\frac{4}{5}$ the width between the antennal sockets. Pronotum with the anterior margin parabolic, posterior margin slightly angled; centre of disk orange, enclosed by a horseshoe-shaped black ring, open in front; lateral and posterior margins broadly cream-white. Tegmina exceeding the abdomen by nearly $\frac{1}{3}$ their length, dark brown to black, with the costal border whitish-hyaline; 23 costals; radial vein forked from beyond the middle; 9 longitudinal discoidal sectors. Wings with the anterior half greenish-yellow iridescent, costal margin and apex deep fuscous; posterior half fuscous, veins black; mediastinal vein 5-ramose; 12 costals; radial vein forked from its middle; median vein simple, slightly sinuous; ulnar vein with two complete branches, no incomplete branches, but with 7 transverse venules in that region; apical triangle moderate. Cerci testaceous. Abdomen below testaceous. Seventh sternite much shorter than the sixth, with the podical plates projecting at either side, the left being the larger. Sub-genital lamina triangular, asymmetrical, a deep emargination on the left, the apex bearing a single style. Legs testaceous; front femora armed after type A.

♂. Total length, 13 mm.



Figs. 1–2.—*Blatella erythrocephala*, sp. n. ♂; 1, pronotum, enlarged; 2, end of abdomen from below, enlarged.

1 ♂. Celebes: Latimodjong Mountains, Uru, 800 m., Aug.–Sept. 1930.

The horseshoe-shaped band of the pronotum readily distinguishes this species from *Blattella germanica*, L., *B. bisignata*, Brunner, and *B. cuneivittata*, Hanitsch, all of which are marked by a pair of longitudinal streaks, and from *B. subvittata*, Hebard, in which those streaks are nearly obsolete.

Symploce perpulchra, Shelford.

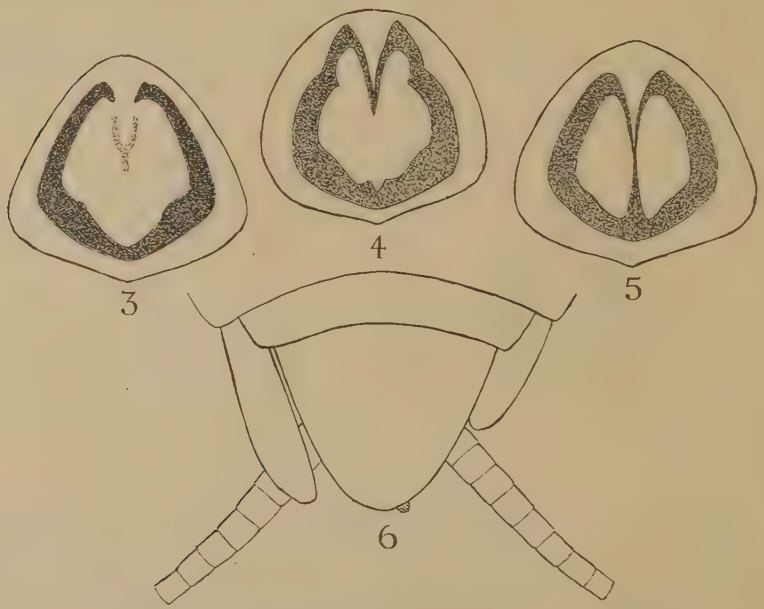
1907. *Ischnoptera perpulchra*, Shelf.—Ann. Mag. nat. Hist. (7), **19** : 27 [♀. Macassar, Celebes; W. Doherty, 1896; type in Oxford University Museum].

2 ♂♂, 1 ♀. Bantimoeroeng, Celebes, 25.v.1930.

Only the ♀ of this species has so far been known. Shelford correctly describes the pronotum as testaceous, with the "disk encircled by a broad penannular ring of black, open on the anterior margin." However, the type specimen in the Oxford Museum shows, though faintly, also a fork-like mark within the black ring (fig. 3). In one of the two ♂♂ examples of the present collection the two front ends of that fork are joined on to the free ends of the penannular ring (fig. 4), whilst in the other ♂ not only is the fork continued

forward and fused with the ring, but is also prolonged backwards so as to divide the testaceous central area of the pronotum into two separate halves (fig. 5). This arrangement recalls the markings of the pronotum in *Symploce cavernicola*, Shelford. Normally the pronotum of that species is orange, or rufous, in colour, completely margined with black. But sometimes the black has so much spread out in the middle line as to leave only a pair of lighter spots.

The sub-genital lamina of the ♂ of *perpulchra* is somewhat similar to that of *Symploce sarasinorum*, Hanitsch, also from Celebes (1933, *Verh. Naturf. Ges. Basel*, **44** : 131, figs. 2 and 3). It is large, of conical shape, with a single very short knob-like style on the left; the spatula-like podical plates are seen on either side, arising from the 7th sternite, the right one being about as long as the sub-genital lamina, the left only half as long, whilst in *sarasinorum* the left plate is the larger (fig. 6).



Figs. 3–6.—*Symploce perpulchra*, Shelford; figs. 3–5, three stages in the marking of the pronotum, enlarged; fig. 6, end of abdomen from below, enlarged.

Symploce **albo-marginata,** sp. n.

♀. Small, black, white-margined.—Head slightly free, shining black; antennae black; inter-ocular distance nearly equal to width between antennal sockets. Pronotum suborbicular, shining black, with a narrow cream-white border at the sides and behind. Tegmina exceeding the abdomen by $\frac{1}{4}$ their length, shining black, with a narrow whitish border along the proximal two-thirds of the costal margin; 19 costals; radial vein bifurcate from the middle of its course; 6 longitudinal discoidal sectors. Wings dark fuscous, costal area black; mediastinal vein 4-ramose; 13 costals; radial vein bifurcate from $\frac{3}{5}$ of its course; median vein simple; ulnar vein with 2 complete branches, one short incomplete

branch, and with 6 or 7 transverse venules in that region in addition; all veins black; no apical triangle. Abdomen above and below shining black. Supra-anal plate bilobed. Cerci with the basal half black (distal half missing). Legs black; front femora armed after type A; hind femora strongly armed.

♀. Total length, 12 mm.

1 ♀. Celebes : Bantimoeroeng, Aug. 1931.

The Oxford Museum contains a ♂ example of this species from Batchian, labelled "M. Burr collection, pres. 1903 by M. B." This ♂ closely agrees with the ♀ just described, except for the white costal border of the tegmina being much reduced. Its supra-anal plate is also bilobed, whilst the sub-genital plate is produced, conical, with a single terminal style. The cerci are black at the base, distally cream-white.

This species comes very near *S. sarasinorum*, Hanitsch, also from Celebes, but differs from it by its considerably smaller size and by the presence of the whitish margin to pronotum and tegmina.

Symploce **fissa,*** sp. n.

♂. Head free, shining black; mouth-parts dull testaceous; inter-ocular distance $\frac{2}{3}$ the width between the antennal sockets; antennae black. Pronotum sub-orbicular; disk shining black, with a wedge-shaped cream-yellow mark dividing the front half of the disk; posterior and lateral margins cream-yellow, the latter tapering away in front. Tegmina exceeding the abdomen by $\frac{1}{6}$ their length, dark fuscous to black; mediastinal area

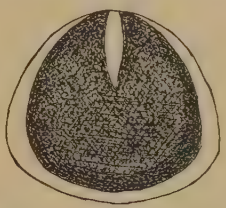


Fig. 7.—*Symploce fissa*, sp. n. ♂; pronotum, enlarged.

and costal margin slightly lighter; 21 costals; radial vein forked at $\frac{2}{3}$ of its course; 6 or 7 longitudinal discoidal sectors. Wings dark fuscous, middle portion of costal area black; mediastinal vein 4-ramose; 11 costals; radial vein forked at $\frac{3}{4}$ of its course; median vein simple; ulnar vein with 2 complete branches and a very short incomplete branch, also with 7 transverse venules in that region; apical triangle very narrow. Cerci black. Abdomen below dark brown. Sub-genital plate produced, triangular. No styles. Front legs light brown; front femora armed after type A. (Remaining legs missing.)

♂. Total length, 14 mm.

1 ♂. Celebes : Paleleh, 15.xii.1930.

Pseudothyrsocera **henrici,** sp. n.

♂. Head exposed, shining black; palps black; antennae plumose, black; inter-ocular distance nearly equal to width between antennal sockets. Pronotum with the anterior margin parabolic, posterior margin slightly rounded; dark orange, posteriorly narrowly cream-white bordered, with the region immediately in front fuscous suffused. Tegmina

* From the markings of the pronotum.

exceeding the abdomen by ⅛ their length, dull orange, infuscated, especially towards the apex; 17 costals, of which the 14th is 3-ramose; radial vein simple; ulnar vein angulate, 6 longitudinal discoidal sectors. Wings dark fuscous, iridescent; mediastinal vein 5-ramose; 11 costals, the 10th 4-ramose, all stout, but not club-like; radial vein simple; median vein simple; ulnar vein with two complete branches, no incomplete branches, but with 3 transverse venules in that region; apical triangle very narrow. Supra-anal plate produced, triangular. Cerci black. Abdomen below dull orange. Sub-genital plate large, conical. No styles. Legs black, with the coxae paler; front femora armed after type A.

♂. Total length, 12 mm.

1 ♂. Latimodjong Mountains, Uru, 800 m., Aug.–Sept. 1930.

Closely allied to *P.* (*Blatta*) *xanthophila*, Walker, the only other species of this genus known from Celebes. It resembles it by the colouring of the pronotum, viz. orange, with a posterior darker suffusion, and by that of the tegmina which are also orange in the two species, with fuscous tips. But whilst in *xanthophila* head and legs are orange, they are black in *henrici*.

Homalopteryx macassariensis, de Haan.

1 ♂. S. Celebes: Talassa (Maros), 300 m., Oct. 1931.

Homalopteryx adusta, Walker (?).

1869. *Epilampra adusta*, Wlk.—Cat. Blatt. B.M., Suppl., p. 131 [Sarawak; ♀ type in Oxford Museum].

1 ♂ nymph. Tangke Salokko, S.E. Celebes, 1500 m., 15.i.1932.

The single specimen is very similar to the type, except that its tegmina and wings are much abbreviated, reaching barely to the middle of the third tergite. I regard it therefore as a nymph of this species.

♂. Total length, 16 mm.

The type ♀ measures 22 mm. in total length; its tegmina and wings are almost as long as the body, exposing only the supra-anal plate.

Rhabdoblatta truncata, Brunner.

1 ♂. Mengkoka Mts., Wawo, 30.i.1932.

Pycnoscelus **aurantius,** sp. n.

♂. Head free, vertex dark orange, face shining black, palps with basal joint testaceous, terminal joints fuscous; inter-ocular distance nearly equal to width between antennal

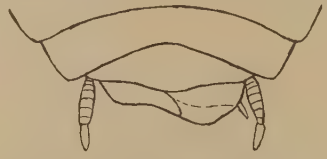


Fig. 8.—*Pycnoscelus aurantius*, sp. n. ♂; end of abdomen from below, enlarged.

sockets; antennae moniliform, dark fuscous to black. Pronotum broader than long, front margin parabolic, hind margin much produced; deeply punctured; disk dark orange, lateral margins sub-hyaline, pale orange. Tegmina exceeding the abdomen by ⅛ their

length, deep orange, apex fuscous suffused. Wings fuscous, with the costal area orange; mediastinal, costal, radial, median and ulnar veins orange, axillary veins fuscous. Abdomen above and below pale golden. Cerci dull orange. Sub-genital lamina asymmetrical, swollen, the right half reduced, only the left style present. Legs testaceous; posterior femora not armed.

♂. Total length, 17 mm.; body, 12 mm.; pronotum, 4·2 × 5 mm.; tegmina, 14 mm.

2 ♂♂. Tangke Salokko, S.E. Celebes, 1500 m., 5.i.1932.

Closely allied to *P. surinamensis*, L., and *P. striatus*, Kirby, but readily distinguished by its striking dark orange colour.

Salganea rectangularis, Hanitsch.

1 ♀. S.E. Celebes: Tangke Salokko, 1500 m., 15.i.1932.

NEW NEOTROPICAL BIBIONINAE (DIPTERA)

By F. W. Edwards, M.A., Sc.D., F.R.E.S.

(*British Museum, Natural History.*)

This paper includes descriptions of new species of Neotropical Bibionidae (subfamily Bibioninae) represented in a collection received for determination from the Dresden Museum, and I have taken the opportunity of describing at the same time some other novelties of this group in the British Museum. The occurrence of a distinct new genus allied to *Bibio* was surprising, as was the large number of new species of *Dilophus*, this genus being evidently very extensively developed in South America, in contrast, with *Bibio*, of which but few species occur.

Bibionellus, gen. n.

Allied to *Bibio*, differing chiefly as follows:—Wings with the costa greatly produced, reaching about half-way from R_5 to M_1 (as in *Dilophus*; in most *Bibio* the costa ceases abruptly at tip of R_5, this being the case also in *Bibiodes*). Front tibia in both sexes with a conspicuous blunt tubercle in middle beneath (rather larger in ♂ than in ♀); front femur with a slight enlargement beneath before the tip, this enlargement bearing a group of microscopic tubercles.

Genotype, the following new species:

Bibionellus **tibialis,** sp. n.

♂. *Head* black behind and beneath. Eyes broadly in contact and constructed as usual in this family, but quite bare. Rostrum not at all produced. Antennae yellowish, very short, the flagellum composed of only 5–6 segments; palpi of moderate length, brownish. *Thorax* shining, with short and very scanty black hair; mesonotum light reddish, scutellum and postnotum blackish, pleurae dark brown. *Abdomen* shining blackish, with scanty dark hair. Hypopygium differing from the usual type of the genera *Bibio* or *Dilophus*, the styles being ventro-lateral in position, without a conspicuous emargination between them (much as in *Plecia*). *Legs* blackish-brown, including all coxae. Front tibia with a very long outer apical spine (as in *Bibio*), the inner spur very much shorter. Hind femur slender and cylindrical on basal half, much swollen on apical half; hind tibia slender on basal third but greatly swollen on apical half or more, with two

moderately long and slender spurs. Hind tarsi slender, much shorter than tibia. *Wings* rather smoky, with darker stigma, all veins somewhat darker than membrane, base narrowly whitish. Base of *Rs* and *r–m* subequal in length and quite short, less than a quarter as long as R_1. M_2 and Cu_1 reaching margin. Halteres blackish.

Wing-length 3·5–4 mm.

♀. Differs from ♂ in having the head, thorax, coxae, femora and tibiae wholly yellowish. Eyes quite small.

Bolivia: Yungas von Coroico, 1200 m., x.1906, 4 ♂♂, 2 ♀♀. Type ♂ and ♀ (*in cop.*) in Dresden Museum.

Bibio peruvianus, sp. n.

♂. *Head* black, including antennae and palpi. Antennal flagellum 7-segmented. Eyes clothed with moderately long hair. Rostrum not at all produced. *Thorax* moderately shining, black, with the posterior pronotal angles yellow; clothed with rather short black hair. *Abdomen* black and black-haired. *Legs* with coxae and trochanters black, femora yellow with tips narrowly black, also base of hind pair, and sometimes the bases of the other two pairs very narrowly; tibiae and tarsi dark brown. Outer spine of front tibia long, inner spur very much shorter. Hind femur with the basal third slender; hind tibia thick for almost the whole length, first hind tarsal segment slightly thickened. Pubescence short and dark. *Wings* slightly smoky, slightly darker towards costa, with dark brown stigma. Base of *Rs* slightly longer than *r–m*; M_2 and Cu_1 complete. Halteres black. Wing-length 6–7 mm.

♀. Resembles ♂ in colouring of body, legs and wings. Head broad, dull black; antennae somewhat longer than in ♂.

Peru: Oroya, 4000 m., 1.1904, 31 ♂♂, 2 ♀♀. Type in Dresden Museum.

This appears to be closely allied to *B. holti*, McAtee, of Arizona and Colorado, which differs (according to the description) chiefly in having the body-hair pale. The female of *B. holti* is unknown.

Dilophus balfouri, sp. n.

♀. *Head* entirely dull black, with black pubescence; not strikingly elongate, the rostrum being somewhat shorter than the fairly large eyes. Palpi black, also scape of antennae (flagellum missing in all three specimens). *Thorax* mainly reddish both above and on sides, but a black area on dorsum includes the combs and the space between them and extends back to within a short distance of the scutellum, the latter black. Combs widely interrupted in the middle, each half of each with about six spines. *Abdomen* dull black. *Legs* with front coxae red, posterior coxae and trochanters dark; all femora red, very narrowly black at tips; tibiae reddish-brown; tarsi black. Front tibia with a mid-dorsal prominence bearing 4–6 strong spines in a transverse row, no additional spines nearer base; about 12 spines around the tip, rather evenly spaced. *Wings* dark brown, stigma black; *r–m* quite four times as long as the short basal section of *Rs*; median fork sessile. Halteres black. Wing-length 9·5–11 mm.

Colombia: Quatiquia River, Villavicencio, 400 ft., xi–xii.1914 (*Dr. Andrew Balfour*). Type and two other ♀♀ in British Museum.

In its large size and conspicuously divided thoracic combs this species resembles *D. giganteus*, Macq., of Venezuela, and I at first determined these specimens as that species. Re-examination of Macquart's type, however, reveals differences which are probably of specific value. *D. giganteus* has the front coxae black; all femora dark brown (probably black when fresh); front

tibia with 7–8 spines in the median row and one more rather smaller spine nearer the base; the outer three spines at the tip separated by a notch from the others; wing-length fully 13 mm.; head and thorax as in *D. balfouri*. Several other South American species belong to this group, but differ from *D. balfouri* in various respects.

Dilophus **villosus,** sp. n.

♂. Black, including antennae, legs and halteres; only hind tibiae more brownish. *Head*, sides of mesonotum and abdomen, and all femora and tibiae clothed with very long and dense black hair. Rostrum scarcely produced below lower margin of eyes. Antennal flagellum missing in type. *Thorax* only moderately shining, whole surface of mesonotum microscopically wrinkled; anterior comb of 10–12 teeth, divided in middle and set on a strong ridge; posterior comb inconspicuous, of 6–8 teeth. *Legs*: front tibia not very stout, with four teeth in a slightly oblique row just beyond the middle and about 10 teeth at tip. Hind tibiae slightly and evenly thickened on distal half, hind tarsi slender. *Wings* very slightly smoky, stigma brown, all veins dark. Median fork sessile; *r–m* nearly three times as long as base of *Rs*. Wing-length 5 mm.

Ecuador: Loja, i.1907 (*Dr. Ohaus*). Type ♂ in Dresden Museum.

The woolliness of the body and legs distinguishes this species from all others of the genus hitherto known in South America.

Dilophus **piliferus,** sp. n.

♂. *Head* black. Rostrum rather more than half as long as remainder of head. Antennae short, flagellum with only four distinct segments apart from a terminal club. *Thorax* shining black, combs each with about 10 spines, those of anterior comb moderately strong, set on a slight ridge; a pair of longitudinal furrows behind posterior comb. Pubescence rather scanty, whitish. *Abdomen* shining black, rather slender. *Legs* with coxae and femora blackish, tibiae and tarsi rather light brown. Front tibia slender, with four rather small spines at middle, two dorsal and two (slightly more distally placed) postero-dorsal; seven rather short and rather pointed spines at tip. Hind tibia and tarsus slender. Hind femur and tibia with long (but not dense) whitish pubescence; on underside of both femur and tibia some hairs are half as long as the limb. *Wings* slightly milky, posterior veins pale, stigma blackish. Median fork shortly stalked; *r–m* about three times as long as basal section of *Rs*. Halteres black. Wing-length 3·5 mm.

♀. Resembles the ♂, except that the front coxae, shoulders and all femora are brownish-yellow; front tibia not much thicker than in ♂, with an oblique row of four spines in middle; hind femur and tibia without long hairs beneath.

Peru: Mamara, 4000 m., 2 ♂♂, 1 ♀. Cuzco, 3500–4200 m., vi.1905, 2 ♀♀. Type in Dresden Museum.

Another male specimen in the Dresden Museum, from Bolivia, Yungasweg, may represent a variety of *D. piliferus*, or perhaps a distinct allied species; it differs from the type in having the legs entirely black and the anterior thoracic comb less prominent.

Dilophus **occipitalis,** sp. n.

♀. *Head* shining black, lengthened behind eyes, the anterior ocellus being well behind upper margin of eyes, but rostrum scarcely produced. Antennae moderately long; scape yellow; flagellum black, distinctly 10-segmented. *Thorax* mainly shining yellowish, scutellum blackish, pleurae brown. Combs each of 8–10 teeth, anterior row moderately strong and indistinctly divided in middle, a slight median longitudinal furrow between the

combs. *Abdomen* black. *Legs* yellowish, tibiae and tarsi darkened, especially on front legs (hind legs missing in type). Front tibia with a transverse dorsal row of 5–7 spines just beyond middle, and one more dorsal spine before middle; 10–12 rather short and sharp spines in the dorsal row in addition to the short spur. *Wings* dark brown, stigma still darker; *r–m* nearly three times as long as base of *Rs*; median fork sessile. Halteres black. Wing-length 6 mm.

Brazil: Theresopolis, 22.ix.1887, 1 ♀. Type in British Museum.

This is just possibly *D. collaris*, Guér., but Guérin's diagnosis is insufficient and his figure shows the space between the thoracic combs black instead of yellow. The yellow antennal scape of the present specimen is noteworthy, as is the elongation of the back portion only of the head.

Dilophus elephas, sp. n.

♂. Black, including antennae, legs, halteres and pubescence, only the tarsi more brownish. *Antennae* rather slender, flagellum 11-segmented, but last 5 segments very indistinctly separated, first six each less than twice as broad as long. *Rostrum* long and rather slender, equal in length to remainder of head (when proboscis is fully extended its length, including the rostrum, is very little less than that of the thorax and abdomen together). *Thorax* shining, combs each of 6–8 teeth, those of anterior comb very strong and set on a distinct ridge. *Abdomen* rather short, shining. *Legs*: Front tibia stout, with two strong subequal spines at about one-third from base and two more just beyond middle; of the seven spines at the tip the three in the middle are much longer than the two on each side; spur longer than the adjacent spines. Hind tibia slightly thickened towards tip, without long hairs beneath; hind tarsus slender. *Wings* nearly clear (not at all milky), posterior veins light brownish, stigma brown, but not conspicuous. Basal section of *Rs* about half as long as *r–m*; median fork sessile. Wing-length 3·5–4 mm.

♀. Resembles ♂ in colour, but abdomen brown instead of black. Front tibia as usual stouter, and anterior thoracic comb still stronger; rostrum rather longer.

Peru: Cuzco, v.1905, 4200 m., 4 ♂♂, 3 ♀♀. Type in Dresden Museum.

This might perhaps be *D.* (*Acanthocnemis*) *ater*, Phil. (Central Chile), but the description is inadequate. *D. longiceps*, Lw. (U.S.A.) differs in having the pubescence of the whole body whitish; *D. tapir*, Schin. (Colombia) in its much larger size and blackish wings.

Dilophus nubilipennis, sp. n.

♂. Black, including antennae, legs and halteres. Antennae rather slender, flagellum composed of only 9 segments, all but the last two well-separated and not much broader than long. Rostrum nearly half as long as eye. *Thorax* rounded, the combs not raised and quite inconspicuous, each with about 8 teeth, one or two on each side of posterior comb displaced backwards. Middle area of mesonotum, between combs and between the rows of dark dorso-central hairs, finely wrinkled and therefore appearing rather dull; lateral areas more finely shagreened. *Abdomen* rather slender, shining. *Legs* rather slender; front tibia with five spines, two at about one-third from base, three more in an oblique row at about two-thirds from base, all rather short and pointed, as are those at the tip. *Wings* with the basal half yellowish, including anterior veins, apical half light brownish, with darker cloud over *r–m* and a dark brown stigma. Wing-length 5–6 mm.

Peru: Laristhal, 1–2000 m., viii.1903. 18 ♂♂. Type in Dresden Museum.

The colouring of the wings readily distinguishes this species from all others of the genus known to me.

Dilophus **distinguendus,** sp. n.

♀. *Head* black, including antennal flagellum, but scape of antennae conspicuously pale yellow. Flagellum very short, only 6–7 broad segments distinguishable apart from the terminal fusion-segment. Head capsule scarcely at all produced beyond eyes. *Thorax* wholly shining yellowish; anterior comb of about 10 strong blunt teeth on a ridge, posterior comb of 12–14 smaller blunt teeth arranged in a semicircle. *Legs* wholly yellowish; front tibial spines reddish, four very strong ones in a transverse row (like the spread fingers of a hand) close to the base, this part of the tibia swollen; seven strong blunt apical spines, equal in length to the spur. *Wings* nearly clear, veins yellowish-brown, even the anterior veins very little darkened; stigma light brown. Median fork shortly stalked; *r–m* about four times as long as the short basal section of *Rs*. Wing-length 4·5 mm.

Chile: Chillan. 2 ♀♀ cotypes in Dresden Museum (both lacking abdomen and halteres).

A very well-marked species on account of the structure of the front tibia; distinguished also from *D. luteus*, Edw., the only other described Chilean species with short head and wholly yellow thorax, by the yellow antennal scape.

Dilophus **flavistigma,** sp. n.

♂. Body and legs wholly shining black, with whitish hair. Rostrum very well marked, as long as the small lower division of eye. Antennae rather slender, flagellum distinctly 11-segmented, most segments rather less than twice as long as broad, terminal one small. Thoracic combs each with about 10 teeth, anterior comb strong, posterior weak, lateral teeth not noticeably displaced backwards. Front tibia with five strong blunt dorsal spines, two near base, three slightly beyond middle, transversely placed; spur not longer than the apical spines. Hind tibia gradually thickened from base to tip; hind tarsus slender. *Wings* milky-white, including posterior veins; anterior veins black as usual; stigma yellowish. Median fork shortly stalked; *r–m* barely twice as long as basal section of *Rs*. Halteres yellow. Wing-length 4·5 mm.

Chile: Magallanes Territory, 1 ♂ (*Miss Z. H. Goudie*). Type in British Museum.

This is in most respects similar to *D. carbonarius*, Phil., of Central Chile, which differs (according to a series in the Dresden Museum which I regard as probably belonging to Philippi's species) in being smaller, with longer and thinner frontal prolongation, and only four dorsal spines on the front tibia (2 + 2, the first pair close to the base). *D. flavihalter*, Edw., also has yellow halteres but the front is not prolonged.

Dilophus **arenarius,** sp. n.

♂. *Head* black, including antennae and palpi. Antennal flagellum thick, with at least 11 distinguishable segments, all much broader than long. Head-capsule only very slightly prolonged beyond lower edge of eye. *Thorax* shining black, with black hair. Anterior comb of about 12 very strong teeth; posterior comb irregular, of small teeth, 2–4 on each side in a longitudinal row behind the main comb. *Abdomen* shining black, with short black hair. *Legs* mainly yellowish-brown, femora somewhat darker, rather variable in tint but never black. Front tibia with four spines, three placed in a transverse row at about the middle, the fourth slightly distal to these on the outer (posterior) side; spur not longer than the apical spines. Hind tibiae and tarsi slender. *Wings* nearly clear but not milky; posterior veins brownish; stigma conspicuous dark brown. Median fork sessile; *r–m* as

long as R_1 and fully four times as long as basal section of *Rs*. Halteres black. Wing-length 5–6 mm.

Chile: Punta Arenas, ii.1908, 6 ♂♂. Type in Dresden Museum.

Resembles *D. tetracanthus*, Edw., in having only four front tibial spines, but differs in the arrangement of those spines as well as in form of antennae, venation, etc.

Dilophus **microcerus**, sp. n.

♂. *Head* black, including antennae, which are extremely short; flagellum apparently with only seven segments, and most of these indistinctly separated. Rostrum not at all produced, quite invisible in side view. *Thorax* brightly shining black, with scanty whitish hairs, chiefly occurring uniserially along the rather distinct dorsocentral furrows. Combs each with about 6–8 teeth; anterior comb on a strong ridge and even the posterior comb rather more prominent than usual in this sex. *Abdomen* shining black, rather stout. *Legs* brownish, femora and tibiae broadly blackish-brown apically. Front tibia stout, with two stout dorsal spines near base and one at middle, a fourth much smaller spine more distally placed on posterior (external) surface; middle spines in the apical set longer than those at sides. Hind femur moderately thickened on distal two-thirds; hind tibia gradually and slightly widened from base to tip; hind tarsi slender. *Wings* slightly milky, posterior veins pale, stigma dark brown. Median fork almost sessile; *r–m* about twice as long as base of *Rs*. Halteres black. Wing-length 2·5 mm.

Argentina: Buenos Aires, 21.x.1926, 4 ♂♂ (*F. & M. Edwards*). Type in British Museum.

This is the smallest South American species known to me, and is rather well distinguished by the arrangement of the front tibial spines.

Dilophus **clavipes**, sp. n.

♂. *Head* black, including antennae and rostrum, latter barely half as long as eye. Antennae not very stout, flagellum with 11 segments fairly readily distinguishable. *Thorax* shining black, combs each with about 10–12 spines, those of anterior comb strong. Pubescence black. *Abdomen* shining black, slender. *Legs* black, middle and hind tibiae and hind tarsi yellowish. Front tibia with one very strong dorsal spine at one-third from base and another just beyond middle, each of these with a much smaller spine adjacent to it on posterodorsal surface; seven spines at tip, the two on each side much smaller than the others. Hind femur rather slender, especially on basal half; hind tibia mainly slender, but somewhat swollen towards tip; first hind tarsal segment greatly enlarged, twice as thick as tip of tibia, second segment also considerably thickened and third slightly so; no specially long hairs on femur or tibia. *Wings* clear, very slightly milky, posterior veins pale, stigma light brown. Median fork nearly sessile; *r–m* about three times as long as basal section of *Rs*. Halteres black. Wing-length 4 mm.

♀ (?). Resembles the ♂, but shoulders and front coxae and femora reddish, and hind tibiae and tarsi largely dark. Front tibial spines as in the ♂, but the first pair nearer the base. Hind tarsi slender.

Peru: Cuzco, 3500 m., iii.1905, 3 ♂♂ (including type). Cuzco, 4200 m., 1.vi.1905, 1 ♀.

The swollen hind tarsi will distinguish this species from all others of the genus hitherto known from South America.

EINIGE NEUE AFRIKANISCHE AKALYPTRATE MUSCIDEN (DIPT.) DES BRITISH MUSEUM

Von Dr. Oswald Duda.

Ende Januar 1934 erhielt ich von Herrn Sir Guy A. K. Marshall aus dem Imperial Institute of Entomology 98 akalyptrate Musciden vorwiegend afrikanischer Herkunft zur Bestimmung. Soweit das Material Familien angehörte, die ich bisher literarisch nicht bearbeitet habe, beschränkte ich mich auf die Familienbestimmung. Hierzu gehörten von afrikanischen Arten der Ephydridae: eine Art, der Lonchaeidae: eine Art, der Lauxaniidae (Sapromyzidae): drei Arten. Mit einiger Sicherheit konnte ich nach Czerny's Arbeiten über die Helomyzidae: *Suillia balteata*, Lamb bestimmen, die in dem Material durch 3 Exemplare (2 ♂♂. 1 ♀) " S. Rhodesia: Salisbury (*A. Cuthbertson*) " vertreten war. Nach Sammlung der einschlägigen Literatur konnte ich feststellen, dass folgende acht Arten aus den Familien der Milichiidae, Chloropidae, Curtonotidae und Drosophilidae noch nicht, oder nicht wiedererkennbar, beschrieben worden sind. Ich beschreibe sie nachstehend unter Benützung folgender Abkürzungen;

am Kopf: ar = Arista, *fr* = Frontalen, *if* = Interfrontalen (Kreuzborsten), *orb* = Orbitalen, *i. orb* = inferiore Orbitalen, *s. orb* = superiore Orbitalen, *p. orb.* = proklinierte Orbitalen, *r. Orb* = reklinierte Orbitalen, *a. r. orb* = anteriore reklinierte Orbitalen, *p. r. orb* = posteriore reklinierte Orbitalen, *pm* = Peristomalen, *poc* = Postocellaren, *pvt* = Postvertikalen, *vi* = Vibrissen, *vte* = exteriore Vertikalen, *vti* = interiore Vertikalen;

am Thorax: an = anteriore Notopleuralen, *as* = Akrostichalen, *dc* = Dorsozentralen, *a. dc* = anteriore Dorsozentralen, *p. dc* = posteriore Dorsozentralen, *h* = Humeralen, *Ma* = Makrochäten, *Mi* = Mikrochäten, *mp* = Mesopleuralen, *pa* = Postalaren, *a. pa* = anteriore Postalaren, *p. pa* = posteriore Postalaren, *pn* = posteriore Notopleuralen, *prsc* = Praeskutellaren, *psut* = Postsuturalen, *prsut* = Praesuturalen, *sa* = Supraalaren, *sc* = Scutellaren, *ap. sc* = apikale Scutellaren, *la. sc* = laterale Scutellaren, *sp* = Sternopleuralen;

an den Beinen: f = femora, f_1 = Vorderschenkel, usw., *t* = tibiae, *mt* = Metatarsen (Fersen);

an den Flügeln: mg_1 = erster Flügelvorderrandabschnitt (vom Flügelgrunde bis zum Ende der 1. Langsader reichend), mg_2 = Abschnitt zwischen 1. und 2. Längsader, usw., *c* = costa, *sc* = subcosta, r_1 = 1. Längsader, r_3 = 2. Längsader, r_5 = 3. Längsader, *m* = Endabschnitt der 4. Längsader, *ta* = transversalis anterior (mittlere Querader), *tp* = transversalis posterior (hintere Querader), *ta-tp* = vorletzter Abschnitt der 4. Längsader, *cu* = 5. Längsader, a_1 = 6. Längsader, *R* = vordere Basalzelle, *M* = hintere Basalzelle, *Cu* = Analzelle.

Milichiidae.

Pareccoptomma, subgen. n.

Becker hat (1907, *Ann. Mus. nat. Hung.* **5**: 540) von *Milichiella*, Giglio-Tos (1845): *Eccoptomma* als nov. subgen. abgetrennt. Diese Untergattung unterscheidet sich nach Becker von *Milichiella* im wesentlichen durch den Besitz von je 4 *dc* und 3–4 *sp* (*Milichiella* hat nach Becker nur 1–2 *dc* und 2 *sp*). Des weiteren schreibt aber Becker noch: " Die Behaarung auf dem Rücken ist sehr weitläufig und grob, mit 4 deutlichen Dorsozentralborsten, die dazwischen stehenden spärlichen Akrostichal börstchen sind annähernd ebenso lang und

stark " und " Die Queradern . . . sind genahert wie bei *Milichiella*, die 3. und 4. Längsader aber bei allen 3 Arten dieser Gattung parallel."—Becker hat keine seiner Arten als genotypisch bezeichnet, aber als erste Art *montanum*, Beck., beschrieben und auch nur bei dieser genauere Angaben über die Thoraxbeborstung gemacht. Er schreibt zu ihr : " zwischen den beiden Reihen der Dorsozentralborsten stehen längere Haare in nur 4-5 unregelmassigen Reihen." Die beiden anderen Arten Becker's haben anscheinend eine mit *montanum* übereinstimmende Thoraxbehaarung. Während sämtliche Arten Becker's aus Südamerika stammten, hat Lamb (1914. *Trans. linn. Soc. Lond.*, **16** : 361) eine Arte der Seychellen als *Eccoptomma solitarium* beschrieben. Diese Art hat zwar auch 4 *dc*, aber im Gegensatz zu Becker's Arten konvergieren bei ihr r_5 und *m*, und aus Lamb's ausführlicher Beschreibung ergibt sich, dass *solitarium*, Lamb, der von mir nachstehend als *nigeriae* beschriebenen Art nahe verwandt ist und (wie *nigeriae*) auch eine ganz andere Thoraxbehaarung hat als Becker's *Eccoptomma*-Arten, und den gleichen Aderverlauf wie *nigeriae*. Lamb beschreibt zunächst eine praesuturale Borstenquerreihe (die auch den Arten der Gattung *Milichia* nicht fehlt) und erwähnt dann von *Ma* nur noch " a distinct, though smaller, prescutellar pair, which form another evident cross row with the last pair of dorso-centrals, an extra bristle each side between the prescutellar and the dorso-centrals, and the bristle over the wing bases," dagegen nicht ein Paar akrostichaler Makrochäten, die bei *nigeriae* vor den medialen prescutellars Lamb's stehen, die also *solitarium* fehlen dürften. Lamb's *solitarium* hat nach Lamb's Beschreibung somit ausser den medialen Praescutellaren *keine* akrostichalen Makrochäten. Von *Eccoptoma*, Beck., unterscheidet sich aber *nigeriae* ferner noch dadurch, dass die akrostichalen Mikrochäten nicht etwa (wie bei *Eccoptomma*, Becker, die akrostichale Makrochäten) in 4–5 Reihen, sondern so dicht und ungeordnet stehen, dass man von Reihen überhaupt nicht mehr sprechen kann. *P. nigeriae* entspricht mithin in keiner Hinsicht Becker's Merkmalen der Untergattung *Eccoptomma*, Beck.—Da sie ebenso wie *Eccoptomma* wegen des Besitzes von je 4 *dc Ma* als *Milichia* nicht beschrieben werden kann, so bleibt nichts anderes übrig, als für sie ein neues Subgenus von *Milichia* aufzustellen. Die im wesentlichen kongenerische Art : *solitarium* Lamb dürfte dem gleichen Subgenus angehören ! Sie unterscheidet sich von *nigeriae* ausser durch das Fehlen anteriorer Akrostichalborsten noch durch eine ganz andere Zeichnung des Abdomens.

Genotype *M.* (*P.*) *nigeriae*, sp. n.

Milichia (**Pareccoptomma**) **nigeriae,** sp. n. ♂.

Kopf halbkugelförmig, schwarz. Gesicht schmäler als die Stirn, flach bzw. nicht gekielt, matt. Stirn matt, schmal, vorn knapp ein Drittel so breit wie an der Scheitelkante, vorn halbkreisförmig ausgeschnitten. Scheitelplatten schmal, den Augen anliegend, mit 3 starken, einwärtsgekrümmten *i. orb.* und 2 noch starkeren, nach aussen gebogenen *s. orb.*, von denen die vordere zugleich nach vorn, die hinteren nach hinten gebogen ist. *vte* und *vti* (im Sinne Hendel's) etwas schwacher als die *s. orb. pvt* fein, eine Spur divergent. *oc* stärker divergent als die *pvt*, etwa so lang wie die *pvt* und länger als ein Paar divergenter Postocellaren (*poc*). Stirndreieck matt, unscharf begrenzt, von sehr feinen *if* eingerahmt. Ocellenfleck die Stirnmitte noch nicht erreichend, matt, doch medial mit einer seichten, schmalen, glänzenden Längsfurche. Augen kahl, am Hinterrande stumpfwinkelig ausgeschnitten. Backen und Wangen sehr schmal; letztere dicht und lang, einreihig, bis über die Gesichtsmitte hinauf beborstet. *vi*-Ecken fehlend. *vi* und *pm* aufgekrümmt, feiner und kürzer als die Wangenborsten. Rüssel dick und kurz, mit sehr kurzen Labellen. Taster schwarz, schlank, apikal sehr schmal gerundet und borstig behaart, vor dem Mundrand nicht oder

nur wenig hervorragend. Fühler schwarz, sehr klein. 2. Glied mit einem deutlichen dorsalen Borstenhaar; 3. Glied etwa so lang wie breit, apikal ziemlich gleichmässig gerundet. *ar* schwarz, fein und lang, fast kahl.

Thorax schwarz. Mesonotum sehr zart graubraun bereift, stark glänzend. *Mi* und *Ma* schwarz. *a. Mi* reichlich vorhanden, in etwa 10 nicht deutlich zählbaren Reihen stehend. Vor einem Paar mittelstarker *prsc* steht je eine gleichstarke *as Ma*. Zwischen den medialen *prsc* und den praescutellaren *dc* steht eine zweite etwas schwächere *prsc*. Je 4 fast gleichstarke *dc Ma* vorhanden, von denen die vorderste vor der Verbindungslinie der Quereindrücke steht. Vor diesen stehen in einer Querreihe jederseits 3–4 *prsut*, die lateralwärts länger werden. Die beiden vorhandenen *h* gleichstark. *an* stark, *pn* schwach. Zwischen der Flügelwurzel und den *d. Ma* stehen hintereinander je 2 lange Intraalaren; dicht hinter der Flügelwurzel und dieser näher als die Intraalaren steht eine lange *a. pa*. Schildchen wenig über halb so lang wie breit, dorsal etwas gewölbt und nur bereift. Von den randständigen *sc* sind die *ap. sc* über 1½ mal so lang wie das Schildchen, parallel und einander näher inseriert als den etwas kürzeren *la. sc*. Pleuren zart bereift und wie das Mesonotum glänzend. *mp* fehlen. Sternopleuren oben mit 2 starken *sp* und einem schwachen und kürzeren Haar davor. *Abdomen* flach, etwa so breit wie der Thorax, zerstreut schwarz behaart. Die Haare stehen teilweise auf schwarzen Punkten. 1. Tergit des ♂ schwarz, medial in sanfter Rundung bis knapp zur Mitte des 2. Tergits in dieses hineinreichend; 2. Tergit mindestens so lang wie das 3. und 4. zusammen, dorsal ausgedehnt schwarz, an den Seitenrändern und ventral weiss; 3. und 4. Tergit dorsal mit breiten, vorn mehr oder weniger zackig begrenzten, schwarzen Querbinden und höchstens linearen weissen Hinterrandsäumen, ventral weiss; 5. Tergit dorsal ganz weiss, ventral mattschwarz und mit reichlichen, sparrig abstehenden, langen, schwarzen Borstenhaaren besetzt, hinten je mit 2 langen, nach hinten gerichteten Borstenhaaren. After klein, schwarz, bräunlich oder gelblich, ventral mit je einem verbogenen feinen Haar ausser einer mikroskopisch feinen Behaarung.—Beine schwarz. *f* gleichmässig geformt und nicht verdickt. f_1 (wie gewöhnlich) posteral lang und dicht schwarz behaart. f_2 und f_3 ventral mässig lang zerstreut behaart. *t* kurz behaart, ohne dorsale Praeapikalen. t_2 mit starker ventraler Endborste. Tarsen schlank, kurz behaart.—Flügel farblos. Adern gelb. *c* bis zur *m* reichend, wie gewöhnlich, auswärts der humeralen Querader durchbrochen und einwärts der r_1 geschlitzt. mg_2 länger als mg_1 und fast 4mal so lang wie mg_3. mg_3 3mal so lang wie mg_4. *sc* zart, bis zum Costalschlitz reichend. r_3 fast gerade. r_5 sanft nach hinten gekrümmt und ziemlich weit hinter der Flügelspitze endend. *m* dem r_3 fast parallel und zum r_5 stark konvergent. *m* etwa 1½mal so lang wie *ta-tp*. *ta* auf der Mitte der *Cd*. *ta* und *tp* eine Spur nach hinten konvergent. *tp* länger als der Endabschnitt der *cu*. *M* und *Cu* geschlossen. a_1 deutlich, nach ⅔ Weg zum Flügelrande verschwindend. *Cu* (wie gewöhnlich) hinten spitzwinkelig. Alula breitlappig.—Schüppchen weiss, weiss bewimpert.—Schwinger gelb, mit verdunkeltem Stiel und schwarz gefleckt Knopf.—Körperlänge etwa 2½ mm.

Nach 10 ♂♂. Nigeria: Gadau 24.iv. (oder 6.vi.) 1933 (*D. J. Lewis*). "Swarming near Boabab."

Chloropidae.

Echimba, subgen. n.

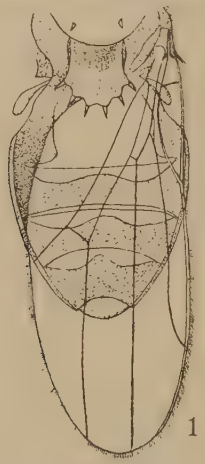
Dieses auf Grund des nachfolgend als *annulipes*, n. sp. beschriebenen Typus von mir aufgestellte Subgenus zu *Tricimba*, Lioy (gebildet durch Zusammenziehung des Wortes "Echinotricimba") unterscheidet sich von *Tricimba*, Lioy (Typus *lineella*, Fall.) durch eine sehr auffällige starke Bestachelung von Kopf, Thorax und Schildchen, kahle Augen, den Besitz je einer Reihe starker Stacheln zwischen den Reihen der *as. Mi* und *dc. Mi*, eines etwa viereckigen Schildchens mit sechs bestachelten Randhöckern, endlich auch noch durch den

Besitz starker intraalarer Stacheln. Sie ähnelt somit in verschiedenen Hinsichten der Gattung *Hammaspis*, Malloch, die indessen ein fünfeckiges Schildchen und anders beborstetes Mesonotum hat.

Genotype *T.* (*E.*) *annulipes*, sp. n.

Tricimba (**Echimba**) **annulipes,** sp. n.

Kopf höher als lang, fast so breit wie der Thorax. Gesicht hellgelb, fast quadratisch, medial schmal und niedrig gekielt, im Profil stark ausgehöhlt. Stirn eine Spur länger als breit, mit dachartig vorspringendem Vorderrand und parallelen Seitenrändern, hellgelb, durch dichte, helle Bereifung allerwärts matt, eingedrückt, und mit äusserst feinen glänzend hellgelb schimmernden *fr* reichlich bedeckt. Längs der Augen stehen auf ihr je 5 starke, kurze, stachelförmige, schwarze *orb*, die von vorn nach hinten kaum merklich länger werden. Es folgt in geradliniger Fortsetzung dieser Stacheln je eine wenig starkere *vte*. Stirndreieck wie die Stirn dicht bereift, matt, gewölbt, beim ♂ gelb, zwischen den hellgelben Ocellen



1

2

Figs. 1–2.—1. *Echimba annulipes*, sp. n. ♂, scutellum, abdomen und rechter Flügel, Dorsalansicht; 2. *Curtonotum cuthbertsoni*, sp. n. ♀, Abdominalende, linksseitig. × c. 22.

schwarz, mit einem medialen linearen schwarzen Längsstreifen, über zwei Drittel so lang wie die Stirn, mit leicht konvex geschwungenen Seitenrändern, beim ♀ ebenso, doch nur zwischen den Ocellen schwarz. *oc* kurz, stachelig, nach oben gerichtet, etwa so lang wie die *vte*. *vti* und *if* fehlend. Occiput flach, an der Oberhälfte schwarz, mit medialem gelbem Ausschnitt; Unterhälfte gelb. Augen klein, langoval, mit fast senkrechtem Längsdurchmesser. Wangen an schmalster Stelle fast linear. Backen gelb, sehr breit (etwa ⅔ Augenlängsdurchmesserbreit). Beim ♂ sind die Augen etwas grösser und die Backen deshalb nur etwa ½ Augenlängsdurchmesser breit. Sie verbreitern sich nach hinten und sind auf der Mitte mindestens 1½mal so breit wie das 3. Fühlerglied. *vi*-Ecken fast so weit vor den Augen hervorragend wie die Stirn. *vi* stachelig; folgende *pm* minutiös, doch auch stachelig. Clypeus schwarz gesäumt. Rüssel gelbbraun, mit dicken und kurzen Labellen. Taster dick, gelb. Fühler braun; das 3. Glied etwas dunkler als das Grundglied, rundlich und etwas kürzer als breit, äusserst kurz pubeszent. *ar* feinhaarig, braun, etwa doppelt so lang wie die Fühler und äusserst kurz pubeszent.—Thorax von schwarzer Grundfarbe, mit Ausnahme der Schultern und Propleuren allerwärts matt und graubraun. Mesonotum

mit 2 tiefen Längsfurchen, an deren Aussenrändern je eine Reihe mikroskopisch kleiner, weissschimmernder *dc. Mi* in einer geraden Linie dicht gereiht stehen. Auf der Mittellinie stehen gleichartige mittlere as *Mi* gescheitelt. Intermediäre *as Mi* fehlen. Statt ihrer sieht man je eine Reihe aufrechter und etwas nach hinten gerichteter, grober, schwarzer Stacheln, die den *vte* gleichen. Je eine stachelförmige praescutellare *dc* ist kaum merklich länger als die genannten intermediären Stacheln des Mesonotums. Laterale Borsten des Mesonotums ebenfalls stachelig, und zwar die *h* klein, die *an* und *pn* etwa doppelt so lang wie die *h*. Hinter den Quersuturen fallen jederseits 3 hoch über, vor und hinter der Flügelwurzel stehende, intraalare, schwarze Stacheln auf. Ausserdem sieht man auswärts der *dc Mi* noch zahlreiche weiss schimmernde ungeordnete *Mi* und 2 winzige praescutellare *pa.*— Schildchen wie fig. 1 abgebildet geformt, etwa so lang wie breit, überwiegend weiss, dorsal basal dunkel gefleckt. Dorsum ziemlich flach, dicht, hell und kurz behaart, am Rande mit 6 auf deutlichen Knötchen stehenden, hellgelben stachelborstigen *sc*, von denen die *ap. sc* kaum merklich länger sind als die *la. sc*. Propleuren oben glänzend rotbraun, nur unten schwärzlich bereift. Meso-, Ptero- und Sternopleuren schwarz, dicht und hell bereift, letztere auch noch reichlich mit hellgelb schimmernden *Mi* besetzt. *Abdomen* (Fig. 1) flach und breit, an den Seitenrändern vom zweiten Segment an schwarz und gewulstet; die vordersten 3 Segmente sind nur sehr undeutlich voneinander abgegrenzt. Die Grundfarbe der Tergite ist schwarzbraun, der Ventrite weiss. Das 1. und 2. Tergit ist medial zusammenhängend ausgedehnt weiss gefleckt. 3., 4. und 5. Tergit mit scharf begrenzten, hinten medial flachbogig ausgeschnittenen Vorderrandbinden; das 3. Tergit auch am Hinterrande linear weiss gesäumt. Afterglied weissgelb, klein, ohne sichtbare Genitalanhänge. Abdomen des ♀ wie beim ♂ geformt und gezeichnet. Legeröhre mehrgliedrig, ziemlich lang und schmal, fein behaart, apikal etwas länger behaart.—Beine wie bei *Tricimba* geformt. Hüften, *f*, *t* und Tarsen hellgelb, doch f_1 posteral am mittleren Drittel schwarz gefleckt, f_2 und f_3 medial in geringerer Ausdehnung schwarz gefleckt. t_3 am mittleren Drittel im Bereiche einer deutlichen area sensorea anteral schwarz gefleckt; beim ♂ auch t_1 und t_2 in geringer Ausdehnung anteral schwarz gefleckt.—Flügel farblos. Adern schwärzlich. Aderung, wie fig. 1 abgebildet. *c* bis zur *m* reichend. mg_2 etwa $1\frac{1}{4}$mal so lang wie mg_3. mg_3 über doppelt so lang wie mg_4. r_3 s- förmig geschwungen. r_5 fast gerade, der Flügelspitze näher endend als *m*. *R* sehr schmal. *Cd* lang. *ta* einwärts der Mitte der *Cd*. *ta-tp* fast doppelt so lang wie der Endabschnitt der *cu*.—Alula schmalzipfelig.—Schwinger weiss.—Körperlänge etwa 2·7 mm.

Nach 1 ♂, 1 ♀. S. Rhodesia: Salisbury, viii.1933 (A. *Cuthbertson*) 3491 = *Anmerkung*. Von den bisher bekannt gewordenen afrikanischen *Tricimba*-Arten hat auch *setosa*, Lamb (1918), eine allgemeine Stachelbeborstung, die aber nach Lamb's Beschreibung sonst der von *lineella*, Fall., entsprechen soll. Ferner schreibt Lamb: "Scutellum subtriangular, with flat disc, similar to dorsum, but orange at tip; terminal bristles parallel, black and very long, with a shorter black one on each side." Auch die Flügel sind ganz anders geädert. Endlich schreibt Lamb: "Abdomen dullish orange-black" und "Legs entirely yellow, except for claws."—Desgleichen ist *Notonaulax trisulcata*, Lamb (1912), eine ganz andere Art als *annulipes*. Sie hat nach Lamb 3 tiefe Mesonotumfurchen, ein dreieckiges schwarzbraunes Schildchen, mit jederseits 3 starken *la. sc* und einem Paar gekreuzter *ap. sc*, und eine verbreiterte *R*.

Polyodaspis **lamborni**, sp. n.

Eine überwiegend rotbraune, am Mesonotum schwarz oder dunkelbraun gestreifte, *ruficornis*, Macq. [*Siphonella*] verwandte Art, von dieser verschieden durch ganz andere Färbung, Hochglanz, Glätte und fehlende Bereifung des Stirndreiecks, fehlende Punktierung der seitlichen und vorderen Stirnpartieen,

vor den Augen nicht hervorragende *vi*-Ecken, ein viel weitlaufiger reihenförmig punktiertes und behaartes Mesonotum und dorsal stark gewölbte Schildchen, das im übrigen wie bei *ruficornis* geformt und beborstet ist.

♂♀: *Kopf* etwa so breit wie der Thorax, ein wenig kürzer als hoch. Gesicht gelb oder rotgelb, eine Spur niedriger als zwischen den *vi* breit, ausgehöhlt, medial sehr schmal und niedrig gekielt. Stirn rotgelb, medial länger als vorn breit, nach hinten sich verbreiternd, am Scheitel fast so breit wie medial lang, auf der Mitte der Quere nach etwas eingedrückt, vorn dachartig etwas über den Fühleransatz vorspringend, allerwärts fettig glänzend, nicht punktiert, fein und kurz zerstreut behaart. Stirndreieck rotbraun oder schwarz, glatt, glänzend, leicht gewölbt, am Scheitel etwa halb so breit wie die Stirn, mit schwach konkaven Seitenrändern, vorn spitz, etwa $\frac{2}{3}$ bis $\frac{3}{4}$ so lang wie die Stirn. *if* fein, deutlich auf's Stirndreieck aufgerückt. *orb* zahlreich, fein, den *if* gleichend. Stirnborsten schwarz. *oc* fein und kurz, nach hinten gerichtet. *pvt* sehr lang, parallel oder eine Spur divergent. *vti* etwas kürzer als die *pvt*; *vte* noch kürzer, doch noch fast doppelt so lang wie die *orb*. Occiput rotbraun. Augen kahl, langoval, mit der Stirntangente parallelem Längsdurchmesser. Backen glänzend, rotgelb, medial über $\frac{1}{3}$ Augenlängsdurchmesser breit und fast $1\frac{1}{2}$mal so breit wie das 3. Fühlerglied, sehr fein und kurz zerstreut gelb behaart. *vi* ebenfalls gelb, fein und kurz. *vi*-Ecken vor den Augen nicht hervorragend und weit hinter dem Stirnvorderrande zurückbleibend. Rüssel dunkelbraun, mit ziemlich langen, schlank rübenförmigen Labellen. Taster gross, gelb, mit einem winzigen apikalen Börstchen. Fühler rotgelb; ihr 3. Glied dorsal etwas verdunkelt, rundlich, wenig breiter als lang. *ar* gelblich, äusserst kurz doch langer pubeszent als das 3. Fühlerglied und knapp doppelt so lang wie das 3. Fühlerglied breit ist.

Thorax glatt, glanzend, unbereift, rotgelb, doch Mesophragma schwarz, Sternopleuren ausgedehnt verdunkelt oder schwarz gefleckt und Mesonotum geschmückt mit 4 schwarzbraunen, schmal rotbraun getrennten Längsstreifen, von denen die medialen vorn bis zum Halse, hinten bis zum hintersten Mesonotumviertel reichen, die lateralen hinter den Schultern beginnen, durch die Quersuturen unterbrochen sind und, nach hinten sich verschmälernd, bis fast zu den *dc* reichen. Mesonotum mit zahlreichen, doch fast zählbaren Reihen kurzer, braun schimmernder *Mi* besetzt. Mittlere *as Mi* und *dc Mi* etwas langer als die je zu 3–4 nebeneinander stehenden intermediären as *Mi*. Die *dc Mi* bilden an der Vorderhälfte des Mesonotums je eine, an der Hinterhälfte je zwei Reihen; letztere stehen in sehr seichten Längsfurchen. 1 *h*, 1 *an*, 2 *pn*, 2 *pa* und 1 *dc* schwarz, haarig und mässig lang.—Schildchen deutlich über halb so lang wie breit, etwa ein Drittel so lang wie das Mesonotum, dorsal viel stärker gewölbt als bei *ruficornis*, Macq. und (wie das Mesonotum) reichlich und kurz behaart. *sc* schwarz. *ap. sc* einander sehr nahe inseriert, wenig kürzer als das Schildchen. Auf winzigen Höckern stehen je 7–8 kurze stachelförmige *la. sc*, die merklich länger sind als die dorsalen *Mi*.—Abdomen variabel gefärbt, beim ♂ fast ganz gelb oder nur ventral in geringer Ausdehnung schwarz gefleckt, beim ♀ an den zwei letzten Segmenten mehr oder weniger ausgedehnt schwarz. Legeröhre schwarz. Behaarung gelb, dorsal kurz, ventral (besonders apikal) lang. After des ♂ klein. Afterlamellen des ♀ schmal und lang, apikal lang behaart.—Beine von gewöhnlicher Länge und Dicke, *bzw.* f_1 und f_3 nicht auffällig dicker als f_2, fein und kurz gelb behaart. Hüften gelb, f_1 gelb, f_2 und f_3 an den Unterhälften mehr oder weniger ausgedehnt schwarz. t_1 gelb, doch dorsal schwarz gefleckt. t_2 und t_3 überwiegend schwarz, basal und apikal nur schmal gelb. Tarsen gelb; ihr ein bis zwei letzten Glieder verdunkelt.—*Flügel* farblos. Adern gelb. Aderung wie bei *ruficornis*, bzw. *c* bis zur *m* reichend. mg_1, mg_2, mg_3 und mg_4 graduell kürzer werdend. r_3 apikal mässig stark zur *c* aufgebogen. r_5 und *m* vorn sanft konkav geschwungen. *m* näher der Flügelspitze endend als r_5. *R* stark verbreitert. *ta* und *tp* stark nach hinten konvergent. *ta* am 2. Drittel der *Cd*.—Schwinger gelb.—Körperlänge etwa $2\frac{1}{2}$ mm.

Nach 3 ♂♂, 2 ♀♀. 1376. NYASALAND: Fort Johnston. Ex pupa (*Dr. W. Lamborn*) iv.1932 und 2 Puppariumhaute.

Anmerkung. Becker hat *ruficornis*, Macq., noch als *Siphonella* abgehandelt. Die von ihm aufgeführten aethiopischen *Siphonella*-Arten haben alle einen schwarzen Thorax. Von ihnen gehören *nigricornis*, (v. Ros.) Beck. und *laminiformis*, Beck., zu *Calamoncosis*, Enderl., *longirostris*, Loew, und vielleicht auch *pusio*, Bezzi, zu *Conioscinella triangularis*, Beck., keinesfalls zu *Polyodaspis*. Die im Jahre 1916 (*Ann. Mus. nat. Hung.*, **14**: 435–36) von Becker beschriebenen Arten: *aenescens*, *amabilis* und *albipennis* haben sämtlich einen erzfarbenen oder schwarzen, stark und dicht punktierten Thoraxrücken.—Von den von Lamb beschriebenen Chloropiden dürften die Arten seiner Gattung *Heteroscinis*, Lamb: *lamborni* am nächsten kommen, und *Heteroscinis*, Lamb, dürfte zu *Macrothorax*, Lioy bzw. *Polyodaspis*, Duda, synonym sein.—*H. variegata*, Lamb, Typus von *Heteroscinis*, ist aber eine andere Art als *ruficornis*, Macq. (Typus von *Macrothorax*, Lioy). Von den beiden Arten Lamb's (*variegata* und *ornata*) ist *lamborni* mindestens durch die ganz andere Thoraxfarbung und das weniger lange und stark gewölbte Schildchen verschieden.

CURTONOTIDAE.

Curtonotum **cuthbertsoni,** sp. n. ♂♀.

Diese Art gleicht so sehr *C. anus*, Meig., dass ich bisher nur am After des ♀ konstante morphologische Unterschiede gefunden habe.

Beim ♀ (fig. 2) schauen aus einem vertikalen Afterspalt oben zwei schlanke, fein und abstehend behaarte Endlamellen hervor, mit apikal längerer, wellig gebogener Behaarung. Zwischen ihnen sieht man eine stielförmiges, apikal knopfig verdicktes unpaariges Organ (Legeröhre) das ganz kahl ist. (Bei *Curtonotum anus*, Meig., ♀ sind vorn stachelig schwarz beborstete, hinten fein und lang behaarte, nach oben gerichtete Endlamellen stets gut sichtbar; die Legeröhre ist somit ganz anders als die von *cuthbertsoni*).—Die ♂ haben schwer darstellbare, *C. anus* sehr ähnliche Genitalien.

Nach 4 ♂♂, 4 ♀♀. S. RHODESIA: Balla Balla, Jan. 1933 (*A. Cuthbertson*), 3495.

DROSOPHILIDAE.

Gitona **darwendalei,** sp. n. ♂♀.

Sehr ahnlich *Gitona distigma*, Meig., aber in mehrfacher Hinsicht verschieden.

Gesicht braun, mit zwei dunklerbraunen Querbinden, die *distigma* fehlen. Stirn (bei *distigma* quadratisch) hier etwa 1½mal so lang wie medial breit, beim ♂ vorn deutlich schmäler als hinten, beim ♀ vorn nur eine Spur schmäler als hinten, matt, dunkler braun als bei *distigma*. Die den Augen anliegenden Scheitelplatten heller grau und etwas breiter als bei *distigma*. Borsten schwarz. Beborstung etwa wie bei *distigma*, doch stehen die *orb* auf deutlichen schwärzlichen Punktflecken. *fr* und *pvt* wie bei *distigma* fein und kurz. Occiput dunkelgrau. Augen kahl. Backen braun, wie bei *distigma* von vorn nach hinten sich verbreiternd, wenig breiter als bei *distigma*, hinten etwa ⅓ Augenlängsdurchmesser breit. *vi* und *pm* wie bei *distigma*. Clypeus stark entwickelt. Rüssel dick, braun. Taster breit, gelb, mit einer ziemlich langen apikalen Borste.—Fühler rotbraun; ihr 3. Glied basal schwärzlich, wie bei *distigma* etwa 1½mal so lang, wie basal breit. *ar* zart, schwarz und wie das 3. Fühlerglied äusserst kurz pubeszent.—*Thorax* matt, von hellgraubrauner Grundfarbe, am Mesonotum mit zahlreichen dunklerbraunen Streifen und Flecken, die durch schmale hellgraue Streifen voneinander getrennt sind. *Mi* und *Ma* etwa wie bei *distigma*, bzw. *Mi* dicht und ungeordnet; *a. dc* etwa so lang wie die medialen *prsc*; *p. dc* über doppelt so lang wie diese *Ma*; eine mässig starke *h*, *an*, *sa* und *a. pa* sowie eine kürzere *pn*, *psut* und *p. pa* (wie gewöhnlich) vorhanden.—Schildchen überwiegend braun, lateral basal und im Umkreis der auf braunen Flecken stehenden *ap. sc* hellgrau gefleckt, apikal breit gerundet.—Pleuren grau, mit einem braunen Längsstreifen mitten

über den oberen Pleuren und einem solchen am Oberrande der Sternopleuren. 2 *sp* (wie gewöhnlich) vorhanden. Mesophragma braun.—Abdomen schwarz beborstet, hellgelb, dorsal vom 3. Tergit an mit einer medialen Reihe dunkelbrauner Flecken, vom 2. Tergit an ausserdem hinten mit dunkelbraunen Seitenrandflecken, die an den folgenden Tergiten graduell sich medianwärts verlangern und an den hintersten Tergiten mit den medialen Flecken zusammenstossen, hier nur schmale Vorder- und Hinterrandsäume gelb lassen, also ganz anders gezeichnet als bei *distigma*.—Beine überwiegend gelb, doch im Gegensatz zu *distigma* alle *t* oben und unten mit dunkelbraunen Ringen. *f* nur diffus gefleckt. Behaarung und Beborstung wie bei *distigma*, bzw. Praeapikalen der *t* verkümmert.—Flügel farblos, doch r_3 apikal mit einem diffusen, mehr oder weniger deutlichen schwärzlichen Fleck. r_5 apikal nicht oder kaum merklich beschattet. Adern im übrigen braun; *tp* etwas verdunkelt. *c* dick bis zum r_5 reichend zwischen r_5 und *m* sehr 2 art. mg_2 etwa 2mal so lang wie mg_3; mg_3 1½mal so lang wie mg_4. r_3 weniger verbogen als bei *distigma*. r_5 und *m* in grösserer Ausdehnung parallel als bei *distigma*. *ta* im Gegensatz zu *distigma* auf der Mitte der *Cd* (bei *distigma* am 2. Drittel der *Cd*). *m* deshalb knapp 1½mal so lang wie *ta-tp* (bei *distigma* 5 bis 6mal so lang wie *ta-tp*) und *tp* etwa so lang wie der Endabschnitt der *cu* (bei *distigma* nur etwa ein Drittel so lang wie der Endabschnitt der *cu*). *Cd* mit *M* verschmolzen bzw. nur durch einen Schatten strich von ihr getrennt.—Schwinger weisslich. —Körperlänge 2 mm.

Nach einem ♀ Re Cotton. 15.viii.18, S. Rhodesia: Darwendale, Agricultural Dept. und einem ♂ gleicher Herkunft vom 17.viii.18.

Anmerkung. *Gitona beckeri*, Duda, aus Turkestan ist *darwendalei* noch ähnlicher als *distigma*, aber ausgedehnter gelbgefärbt, ohne schwärzliche Ringelung der *t*. Die Backen sind nur etwa bis ¼ Augenlängsdurchmesser breit und *tp* ist nur zwei Drittel so lang wie der Endabschnitt der *cu*.

Leucophenga **buxtoni,** sp. n. ♂.

Kopf weiss, nur am Occiput überwiegend schwarz, hellgelb beborstet. Gesicht über 1½mal so hoch wie breit. Kiel niedrig, tief reichend und breit, unten sanft zum Mundrande abfallend. Stirn mit fast parallelen Seitenrändern, über 1¼mal so lang wie auf der Mitte breit, hellgelb, gattungstypisch beborstet. *fr* unscheinbar; *pvt* sehr fein und kurz, knapp halb so lang wie die *oc*; *a. r. orb* etwa halb so lang wie die *p. orb* und *p. r. orb*. Augen kahl. Backen sehr schmal, fast linear. *vi* etwa doppelt so lang wie die folgenden *pm*. Clypeus, Rüssel und Taster weisslich. Taster des ♂ klein, schmal und relativ kurz, unterseits ausser einer kurzen Behaarung mit einer subapikalen Borste, die fast doppelt so lang wie der Taster breit ist. Fühler weiss; ihr 1. und 2. Glied kurz; ihr 3. Glied über 2½mal so lang wie breit. *ar* schwarz, basal weiss, dreizeilig behaart, oberseits mit 7 bis 8, unterseits 2 bis 3 langen Strahlen.—Thorax nebst Schildchen weissgelb, gelb behaart und beborstet, mit weisser, silbrig schimmernder Bereifung. Reihen der *as Mi* schwer zählbar. *p. dc* lang; *a. dc* wenig länger als die medialen *prsc*. Laterale *Ma* wie gewöhnlich. Schildchen blassgelb, dorsal kahl, apikal sanft gerundet. Pleuren gleichmässig weissgelb. 2 lange *sp* (wie gewöhnlich) vorhanden.—Abdomen blass gelb, mit von vorn besehen silberweiss schimmernder Bereifung und gelber Beborstung. 3. 4. und 5. Tergit fast gleichlang, reichlich und kurz, am Hinterrande lang behaart und jederseits mit einem schwarzen rundlichen Punktfleck. 4. Tergit ausserdem noch mit einem medialen grösseren schwarzen Fleck, der etwa doppelt so lang wie die lateralen Punktflecken ist, und ventral jederseits mit einem mittelgrossen schwarzen Punktfleck.—Beine blassgelb.—Flügel farblos, ungefleckt. Adern gelb. r_1 apikal nur eine Spur verdunkelt. mg_2 1½mal so lang wie mg_3. mg_3 über doppelt so lang wie mg_4. *c* bis zur *m* reichend. r_3 gerade. r_5 vorn konvex gebogen, an der Flügelspitze endend. *m* gerade, über doppelt so lang wie *ta-tp*. *ta* und *tp* gerade und parallel. *ta* auf der Mitte der *Cd*. *Cd* von *M* nur durch eine farblose Querader getrennt. *cu* wie gewöhnlich den Flügelrand erreichend.—Schwinger blassgelb.—Körperlänge etwa 3 mm.

Nach 5 ♂♂. N. NIGERIA: Gadau, 28.vi.1933 (*Buxton* and *Lewis*).

Wodurch sich diese und die folgende Art von den übrigen bisher beschriebenen *Leucophenga*- Arten unterscheidet, habe ich in der Bestimmungstabelle in meiner noch immer nicht gedruckten Revision der afrikanischen Drosophiliden angegeben.

Leucophenga **lewisi,** sp. n. ♂♀.

Kopf überwiegend weiss und hellgelb, nur am Occiput oben, besonders ausgedehnt beim ♂ schwarz gefleckt, schwarz beborstet. Gesicht flach oder nur sehr niedrig gekielt. Stirn etwa 1½mal so lang wie auf der Mitte breit, beim ♀ hellgelblichgrau und mit parallelen, beim ♂ weiss und mit etwas konvergenten Seitenrändern, matt. *fr* zerstreut, fein und kurz. *a. r. orb* etwas kürzer als die *p. orb*, diesen näher inseriert als den stärkeren *p. r. orb*; *pvt* etwa halb so lang wie die *vti* und etwa ⅔ so lang wie die *oc*, fast so lang wie die *a. r. orb*. Augen kahl. Backen fast linear. *vi* stark; *pm* fein und kurz.—Clypeus weisslich; Rüssel und Taster gelb; diese mässig lang und breit, unterseits mit einzelnen langen Haaren, von denen ein subapikales etwas dickeres Haar etwa doppelt so lang wie der Taster hier breit ist.—Fühler blassgelb; ihr 3. Glied dorsal etwas graubraun angeräuchert, basal breit, apikalwärts sich verschmälernd, etwas doppelt so lang wie basal breit. *ar* schwarz, dreizeilig behaart, oberseits mit etwa 7, unterseits 4 langen Strahlen.—*Thorax* hellgraubraun, nebst dem Schildchen beim ♂ bei Betrachtung von oben oder vorn silberweiss schimmernd, dicht schwarz behaart. *a. dc* und mediale *prsc* (wie gewöhnlich) fast gleich lang. *p. dc* etwa doppelt so lang. Ausser einer starken oberen *h* noch eine über zwei Drittel so lange untere *h* vorhanden. *prsut* etwa so lang wie die unteren; *an*, *sa* und *a. pa* (wie gewöhnlich) stark; *p. pa* und *psut* schwächer etwa so lang wie die *prsut*.—Schildchen von hinten besehen dunkelgraubraun, mit weisser Spitze. *sc* stark.—Pleuren nur diffus grau gefleckt. 2 starke *sp* vorhanden.—Abdomen des ♀ hellgelbbraun, dorsal am 2. Segment vorn mit schwarzen Seitenrandflecken; 3., 4. und 5. Tergit mit einem breiten schwarzen medialen Längsstreifen und breiten schwarzen Hinterrandbinden, die am 4. und 5. Tergit lateral zipfelförmig mehr oder weniger weit nach vorn und bis oder fast bis zu den Tergitvorderrändern reichen, am 3. Tergit (wie regulär beim ♂) oft auf laterale schwarze Hinterrandflecken reduziert sind. 6. Tergit kurz, ganz schwarz. Ventral sind die Tergite überwiegend schwarz und lassen nur gelbe laterale Vorderrandflecken übrig.—Abdomen des ♂ ausgedehnt silberweiss schimmernd; bei ihm hat das 3. Tergit keine schwarze Hinterrandbinde, sondern nur je einen grossen lateralen schwarzen Fleck vor den Hinterrändern. Es ist im Gegensatz zu vielen anderen Arten fast so lang wie das 4. Tergit und dorsal wie die folgenden Tergite beborstet. —Beine hellgelb, schwarz behaart.—*Flügel* farblos. *c* gelb: übrige Adern schwärzlich. mg_2 fast doppelt so lang wie mg_3; mg_3 knapp doppelt so lang wie mg_4. *c* bis zur r_5 reichend. r_3 sanft S-förmig verbogen. r_5 vorn konvex geschwungen, der geraden *m* weithin parallel. *ta* und *tp* gerade und parallel. *ta* dicht auswärts der Mitte der *Cd*; diese undeutlich von *M* getrennt. *ta-tp* etwa halb so lang wie *m*.—Schwinger weissgelb.—Körperlänge 3 mm.

Nach 7 ♂♂. SIERRA LEONE: Freetown, 30.ix.1933 (*D. J. Lewis*), 2 ♂♂, 1 ♀ 3436. S. RHODESIA: Balla-Balla. iii.1933 (*A. Cuthbertson*) und einem ♀ gleicher Herkunft vom v.1931.

Drosophila **nutrita,** sp. n. ♀.

Kopf hellgelbbraun. Gesicht wenig höher als zwischen den *vi* breit. Kiel nasenförmig, steil zu eine ziemlich breiten Gesichtsoberlippe abfallend. Stirn vorn breiter als medial lang, hinten sich verbreiternd, matt, schwarz behaart und beborstet. Scheitelplatten schmal, von den Augen nach vorn innen abweichend. *p. r. orb* den *p. orb* näher als den *vti*; *a. r. orb* mitten zwischen *p. orb* und *p. r. orb* und wenig auswärts deren Verbindungslinie, noch nicht halb so lang wie die *p. orb*; vor ihr stehen hintereinander drei wenig kürzere, parallel nach hinten aussen gerichtete orbitale *Mi*; *vte*, *vti* und *pvt* wie gewöhnlich stark.—Augen dicht und kurz behaart, kurzoval. Backen deshalb sehr breit, auf der Mitte etwa

⅓ Augenlängsdurchmesser breit und etwa 1½mal so breit wie das 3.Fühlerglied. Vorderste *pm* nicht länger als die folgenden *pm* und nur etwa ein Drittel so lang wie die *vi*. Rüssel und Taster gelbbraun; diese nicht besonders gross. Fühler gelb, doch 3. Glied schmutzig graubraun; dieses knapp 1½mal so lang wie breit und mässig lang behaart. *ar* schwarz, dreizeilig behaart, oberseits hinter einer endgabel mit 3, unterseits 2 langen Strahlen.—*Thorax* gleichmässig he.lgelbbraun, schwarz beborstet. Mesonotum zart bereift, etwas glänzend. Zwischen den Reihen der *dc Mi* 6 Reihen *as Mi*; die *Mi* der mittleren 4 Reihen stehen in geraden Linien; die *Mi* der Aussenreihen stehen nicht geradlinig gereiht, sondern bilden je zwei einander sehr genäherte Reihen, sodass man auch 8 Reihen as *Mi* zählen kann. Mediale *prsc Ma* fehlend. Längenabstand der *dc Ma* etwa halb so gross wie ihr Seitenabstand. Je zwei gleichstarke *h* vorhanden. Uebrige *Ma* des Mesonotums wie gewöhnlich. Schildchen hinten gleichmässig gerundet, dorsal kahl. *ap. sc* einander wenig näher als den *la. sc* sp wie gewöhnlich.—*Abdomen* der nicht völlig ausgefärbten, gezüchteten Tiere gleichmässig gelbbraun, besser ausgereift mit unscharf begrenzten, breiten, schwarzbraunen, medial unterbrochenen Hinterrandbinden, im übrigen mattglänzend und schwarz beborstet. Genitalien unentwickelt, geschrumpft.—Beine gelb; f_1 (wie gewöhnlich) posteral (dorsal und ventral) mit zerstreuten langen Borstenhaaren, anteral ventral zerstreut kurz behaart. Praeapikalen der *t* schwächlich. Tarsen des ♀ schlank; mt_1 etwa so lang wie die 2 nächsten Glieder zusammen, fein behaart.—*Flügel* farblos. Adern gelbbraun. *ta* und *tp* nicht verdunkelt. Geäder sehr ähnlich dem von *D. fasciata*, Meig. mg_2 etwa doppelt so lang wie mg_3. mg_3 etwa 2½mal so lang wie mg_4 und so lang wie *ta-tp. c* bis zur *m* reichend. r_3 fast gerade; r_5 vorn sehr sanft konvex geschwungen, der *m* weithin parallel; *ta* dicht einwärts der Mitte der *Cd. m* etwa doppelt so lang wie *ta-tp.*—Schwinger gelb.—Körperlänge der von *fasciata*, Meig. entsprechend, etwa 1½ bis 1¾ mm.

Nach 5 ♀♀. S. Rhodesia: Salisbury Dept. Agric. iii.1932. "Ex larva in decomposing spathe of *Monstera* sp. (Araceae) 3065" und 2 ♀♀ "Ex decomposing fruit of prickly pear (*Opuntia*)."

Diese im Geader *fasciata*, Meig., ähnliche Art ist von dieser durch die viel breiteren Backen, das Fehlen einer starken ersten *pm*, andere Beborstung des Mesonotums und andere Zeichnung des Abdomens schon im weiblichen Geschlecht leicht unterscheidbar und in meiner Bestimmungstabelle der afrikanischen *Drosophila*-Arten berücksichtigt.

TWO NEW CLERIDAE (COL.) FROM INDIA *

By J. B. Corporaal, F.R.E.S.

(*Amsterdam.*)

At the request of Mr. J. C. M. Gardner, of the Forest Research Institute, Dehra Dun, I describe below two species of Clerids that he has been fortunate enough to breed. He intends to publish descriptions of the larvae which he associates with them as well as of those of a few more previously described species. *Tillus vicarius*, which shows the same sexual dimorphism as its European ally, is especially interesting. The holotypes and allotype are in the British Museum; paratypes in the Zoological Museum, Amsterdam, and the Forest Research Institute, Dehra Dun.

Tillus vicarius, sp. n.

T. elongatus affinis et similis. Mas aterrimus, ore, coxis tibiarumque dimidia parte basali testaceis; elytris submetallescentibus. Femina testacea, antennis, meso- et metathorace tarsisque piceis; elytris lucide aeneovirentibus.

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* 12th Communication on Cleridae.

Similar and allied to the European *T. elongatus*, L.

♂. Black; mouth-parts, all the three coxae, femora and basal half of the tibiae testaceous; tibiae darkened towards apex. Tarsi black. Elytra with a bluish to greenish metallic hue. Pubescence as in *T. elongatus* ♂, black and rather long (as in the compared species the pubescence on the antennae is intermixed with white hairs). Head as in *T. elongatus* ♂; antennae somewhat slenderer, their pectinations somewhat feebler. Basal $\frac{2}{3}$ of pronotum not transversely wrinkled, as in *T. elongatus* ♂, but punctuated as is the apical part and head. Elytra towards apex more dilated than in the male of the compared species; their punctuation also in rows, but stronger.—Length, 6·7–7·4 mm.

♀. Testaceous, with the exception of the eyes, the antennae, meso- and metathorax and tarsi, which are black, and of the elytra, which are metallic green to bluish (lighter than in the male). Basal joint of the antennae testaceous; form of antennae as in *T. elongatus* ♀; the pubescence almost totally black. Form and punctuation of elytra as in *T. elongatus* ♀.—Length, 7·4–8·0 mm.

3 ♂♂: *Holotype* (Nr. 344) 7 mm., labelled R.R.D. 493, B.C.R. 142, Cage 553, ex *Quercus dilatata*. United Provinces: Mundali, Chakrata (*J. C. M. Gardner*), 18.iii.1934. *Paratypes* (Nr. 345) 6·7 mm., 19.iii.1934, and (Nr. 348) 7·4 mm., 30.iii.1934, from the same locality.

3 ♀♀: *Allotype* (Nr. 348) 7·4 mm., 30.iii.1934, and *paratypes* (Nr. 346) 8·0 mm., 30.iii.1934, and (Nr. 347) 8·0 mm., 18.iii.1934, all from the same locality.

Pelonium **gardneri,** sp. n.

Testaceum, oculis, antennarum clava, mandibulis, geniculis anterioribus elytrorumque apicibus piceis.

Testaceous, pubescent with yellowish upright hairs. Eyes large, black, round, with an incision at the implantation of the antennae; just behind each eye the head is piceous. Antennae with the basal joint yellow, stout; funiculus testaceous, darkening towards apex; the 3-jointed club piceous. Of this club the first two joints are flat, triangular, each a little shorter than the funiculus; last joint flat, elongate, a little shorter than the two penultimate joints together. Pronotum slightly impressed behind the front margin; hind margin finely elevated. Elytra soft, finely and irregularly punctuated from base to tip, with a few very indistinct, slightly elevated, longitudinal lines. Apex of elytra for about $\frac{1}{5}$ of their length piceous; the dark portion extends farther at the margin than at the suture.—Length, 8·7 mm.

Three specimens, which apparently are all females.* *Holotype* (Nr. 183) labelled Jawalagiri, North Salem, F.R.I. Sandal Insect Survey, 27.iv.1930. *Paratype* (Nr. 181), Ayur, North Salem, F.R.I. Sandal Insect Survey, 28.iv.1930; idem (Nr. 338), somewhat immature, Madras: North Salem (*B. Singh*), 28.iv. 1930, ex *Acacia leucophlaea*.

This species is closely allied to *P. extraneum*, Gorh., and *P. gorhami*, Lohde (= *lividum*, Gorh.), but differs from both by the light colour of the legs and from the former also by the light underside of the body.

I have the pleasure of dedicating this species to Mr. J. C. M. Gardner.

* In a former consignment were two specimens (Nos. 1817 & 1818) which might represent the males of this species. They are from exactly the same locality, from trees and taken on the same day as the paratype (No 338). They agree in most points with the three females, but the last three joints of the antennae are excessively long (each as long as head and thorax together), flat and apparently quite soft, so that in drying they have become wrinkled and bent into irregular shape.

As, however, one has the legs entirely testaceous, the other from half-way along the tibiae to the end black, I cannot decide whether this difference should be attributed to individual variation until I have seen more material.

A NOTE ON JACOB HÜBNER'S *VERZEICHNISS DER FERTIGEN BLÄTTER UND WERKE* OF 12TH MARCH, 1814, WITH A FACSIMILE

By Francis Hemming, C.B.E., F.R.E.S.

I am much indebted to Professor W. T. M. Forbes of Cornell University, Ithaca, N.Y., to whom, through Mr. N. D. Riley, I have received a photostat copy of a hitherto unnoticed pamphlet of Hübner's. This three-page pamphlet of which I now give a facsimile reproduction is dated 12th March, 1814, and gives particulars of the various works of Hübner's which were on sale on that date. The information thus given is of very great importance for the determination of the dates of publication of two of Hübner's works.

The first of these is the *Sammlung exotische Schmetterlinge.* For the first volume of this work, very important data is provided by the present pamphlet, which shows that in the case of a large number of the genera included in that volume all the plates had been published by 1814.

The second of these works is the *Zuträge zur Sammlung exotische Schmetterlinge,* which is here shown to have been issued in parts and not in complete volumes as has hitherto been supposed.

In the case of each of these works, I have recently obtained from other sources additional information throwing light on their dates of publication. This information, combined with that provided by the present pamphlet, has enabled me to reconstruct the dates of publication of these works in much greater detail than has hitherto been possible. I propose to publish my conclusions on the first of these works at an early date. Those concerning the second appear in the immediately following paper (pp. 38 to 46).

[Page 1.]

Verzeichniß der fertigen Blätter und Werke, welche von Jacob Hübner, Naturforſcher und Naturalienmaler in Augsburg, H. 342. gegen baare Bezahlung abgegeben werden.

Auf groß Medianbogenformat; ausgemalt.

Naturgemäß bearbeitete Anſichten von Augsburgs angenehmen Gegenden.

Oeſtliche Anſicht des Lechfluſſes, bey Augsburg. Weſtliche Anſicht des Wertachthales, bey Augsburg. Nördliche Anſicht vom Wertachthale, bey St. Radigunda. Nördliche Anſicht vom Lechfelde, bey der Lechſchleuſe. Oeſtliche Anſicht des Lechthales, vor der J. M. Schäleiſchen Bleiche. Südliche Anſicht des Lechthales, bey Schärneck. Nördliche Anſicht des Lechfeldes, bey Mergenthau. Oeſtliche Anſicht des Sandberges, bey dem Kobel. Nördliche Anſicht des Wertachthales, bey Straßberg. Südöſtliche Anſicht des Schmutterthales gegen den Hammel.

Jedes Blatt wird für fl. 3. 36 Kr. abgelaſſen.

Auf groß Medianfolioformat; ausgemalt.

Beſchreibung und Abbildung der americaniſchen Agave, in ihrem Blüthenſtande, nach einem der zwey Muſter, welche 1813 auf dem Harte geblühet haben.

Ein Exemplar koſtet 36. 24. oder 12 Kr.

[Page 1, *contd.*]

Andenken für verlebte Geliebte, Freunde oder Wohlthäter.

Ein Grabmal mit einem Inschriftsraum, woran ein die Asche krönender Genie sich befindet, in einer schönen Aussicht. Ein Grabmal mit einem Inschriftsraum, woran eine trauernde Weibesgestalt steht, desgleichen in einer schönen Aussicht in die Ferne. Ein Grabmal im Schatten und eines im Lichte unter Bäumen, auch angenehme Aussicht daneben.

Jedes Blatt wird ausgemalt für fl. 1. 48 Kr. die zwey Erstern aber auch schwarz für 27 Kr. abgegeben.

Auf groß Medianquartformat; ausgemalt.

Geschichte europäischer Schmetterlinge; gesammelt von Jac. Hübner, in Augsburg.

Dazu ist bereits gefertigt: das Titulblatt, zwey halbe Bogen Text von den Faltern und Abbildungen der wandelbaren Schmetterlingsgestalten, als Eyer, Raupen und Puppen, nebst ihrer Nahrung, von Faltern 47 Blätter, von Schwärmern 23. von Spinnern 72. von Eulen 115. von Spannern 77 von

[Page 2.]

Zünslern 11. von Wicklern 13. von Schaben 18. und von Geistigen 2. Dieses Werk wird thätigst fortgesetzt.

Jedes Blatt der Abbildungen wird für 27 Kr berechnet.

Sammlung europäischer Schmetterlinge; errichtet von Jac. Hübner, in Augsburg. 1805.

Von diesem Werke ist bereits fertig: der erste Band bestehend in dem Titul, Vorbericht, Contribuentenverzeichniß, den Beschreibungsbögen a—k und 124 Blätter Abbildungen der Falter-Bildgestalten; der zweyte Band bestehend in den Beschreibungsbögen l—u und 79 Bl. Abb. der Schwärmer- und Spinner-Bildgestalten; zum dritten Bande 134 Bl. Abb. der Eulen; zum vierten Bande 89 Bl. Abb. der Spanner; zum fünften Bande 64 Bl. Abb. der Zünsler und Wickler; zum sechsten Bande 69 Bl. Abb. der Schaben und Geistigen und zum Nachtrage 33 Bl. Abb. der Falter, Schwärmer und Spinner. Auch dieses Werk wird möglichst fortgesetzt.

Jedes der Abbildungsblätter wird für 24 Kr. berechnet.

Zuträge, einzelner, seltener oder neuaufgebrachter Schmetterlinggattungsgeschlechter, zur Sammlung exotischer Schmetterlinge.

Davon sind vorläufig 25 Blätter Abbildungen fertig geworden Mehrere sollen noch gefertigt werden.

Jedes Blatt kostet 36 Kr.

Sammlung exotischer Schmetterlinge; angelegt von Jac. Hübner, in Augsburg.

Nebst sechs Blättern Beschreibungen sind hiezu fertig: Abbildungen der Falter, 144 Blätter; nemlich: von den Nereiden 17. Limniaden 15. Lemoniaden 5. Dryaden 5. Hamadryaden 12. Najaden 10. Petraiden 13. Dreaden 13. Rusticen 8. Principen 21. Mancipien 12. Consulen 1. und Urbanen 12. Abb. der Schwärmer, 8 Bl. von den Corysaoren 1. Glaucopen 4. Eumorphen 1. Nauducen 1. und Amorphen 1. Abb. der Spinner, 19 Bl. von den Echidnen 6. Daspchiren 1. Hipocriten 11. und Eutrichen 1. Abb. der Eulen, 5 Bl. von den Diphtern 1. Achatien 1. Ascalaphen 2. und Brephen 1. Abb. der Spanner, 8 Bl. von den Euseren 1. Laren 1. Eutropelen 1. Erastrien 1. Comatophoren 2. und Petrophoren 2. Abb. der Zünsler, 3 Bl. von den Palpiten 2. und Idien 1. An diesem Werke wird immer gearbeitet.

Jedes Blatt der Abbildungen kostet 36 Kr.

Monographie von Testaceen. Baierische Landschnecken, Cobresien; genau nach der Natur bestimmt, angeordnet, eingetheilt, benennt, beschrieben und abgebildet durch Jacob Hübner ꝛc. Augsburg 1810.

Das Exemplar kostet 36 Kr.

[Page 3.]

Anſichten von Augsburgs Umgebungen und Gegenden.

Südliche Anſicht der Augsburger-Lechſchleuſe, der Ablaß genannt. Oeſtl. Anſ. der Augsb. Landſtraſſe, bey der Wertachbrücke. Nördl. Anſ. der Augsb. Landſtraſſe, beym Prinzen genannt. Oeſtl. Anſ. der Augsb. Holzwarte, die 7 Tiſche genannt. Oeſtl. Anſ. der Augsb. Umgebung, neben dem rothen Thor. Südl. Anſ. der Augsb. Landſtraſſe, den dem untern Stadtjägerhauſe. Nördl. Anſ. der Augsb. Lechſchleuſe, der Ablaß genannt. Südl. Anſ. des Augsb. Schützenplatzes, der obere Schießgraben genannt. Südl. Anſ. der Augsb. Umgebung, oder dem Steffingerthore. Südl. Anſ. des Augsb. Schützenplatzes, die neue Roſenau genannt. Nördl. Anſ. der Augsb. Lechbachzunge, der Spickel genannt. Südl. Anſ. der Augsb. Umgebung, vor dem Gögginger thore. Oeſtl. Anſ. der Augsb. Umgebung, bey dem Geſundbrunnen. Nördl. Anſ. der Augsb. Umgebung, vor dem Schmiddegen. Nördl. Anſ. der Augsb. Gegend, nächſt dem Schloſſe Wellenburg. Oeſtl. Anſ. der Augsb. Umgebung, unter dem Steffingerthor. Oeſtl. Anſ. der Augsb. Gegend, auf dem Spickel genannt. Südl. Anſ. der Augsb. Umgebung, über den Schleifgraben. Weſtl. Anſ. der Augsb. Wertachſchleuſe, am untern Badeplatz. Weſtl. Anſ. der Augsb. Gegend, vor der Friedbergerlechbrücke. Oeſtl. Anſ. der Augsb. Gegend, auf dem Kobel genannt. Oeſtl. Anſ. der Augsb. Gegend, bey der Lechhauſer-Brücke.

Jedes dieſer Blätter wird für 54 Kr. erlaſſen.

Vorgründs-Materialien zu Landſchaften. Aus dem Pflanzenreiche ꝛc.

Vier Blätter werden für fl. 1. 36 Kr. abgelaſſen.

Auserleſene Früchte.

Vier Blätter koſten fl. 1. 12 kr.

Gemeinnützige Pflanzen-Abbildungen, für alle Stände.

Davon ſind 12 Blätter illum. für fl. 2. 24 Kr. unillum. für fl. 1. 12 Kr. abzulangen.

Auf groß Medianoctavformat; ausgemalt.

Beyträge zur Geſchichte der Schmetterlinge, von J. Hübner. Augsburg 1790.

Davon ſind zwey Bände vorhanden, deren jeder fl. 8. koſtet.

Sammlung auserleſener Vögel und Schmetterlinge, von Jacob Hübner. Augsburg 1793.

Ein einzelner Band mit 100 Blättern Abbildungen. Wird für fl. 12. 36 Kr. erlaſſen.

Auserleſene Blumen.

Davon ſind 15 Blätter fertig, deren jedes 15 Kr. koſtet.

Bilder in Stammbücher ꝛc. zu Andenken und Verzierungen.

Ihrer ſind hunderterley; jedes Bild wird für 18, 12 oder 6 Kr. erlaſſen.

Geſchrieben den 12. Merz 1814.

A NOTE ON JACOB HÜBNER'S *ERSTE ZUTRÄGE ZUR SAMMLUNG EXOTISCHER SCHMETTERLINGE* OF 1808

By Francis Hemming, C.B.E., F.R.E.S.

Through the kindness of Mr. H. J. Turner, the library of the Royal Entomological Society of London has recently received a photostat copy of a very important and hitherto unnoticed pamphlet published by Jacob Hübner in 1808, which had been sent him by Dr. Walther Horn. The original from which this copy was made is in the Deutsches Entomologisches Institut at Berlin-Dahlem. Another copy of the same pamphlet is in the possession of Herrn Friedländer & Sohn of Berlin.

This pamphlet, which is dated 1808, consists of eight quarto pages. The title page reads as follows :—

Erste
Zuträge
zur
Sammlung exotischer Schmetterlinge,
bestehend
in
genauer und richtiger
Bekundigung einzeln erworbener Bildermuster
neuerfundener
americanischer und columbianischer
Schmetterlinggattungen,
von
Jacob Hübner
in
Augsburg
1808.

In three short opening paragraphs Hübner explained that lepidopterists in foreign countries had supplied him with specimens of a number of new species, that he proposed to figure and describe these in a *Zuträge* to the *Sammlung exotische Schmetterlinge*, and that pending doing so he proposed to give on the present occasion a list of the names of the species that he intended to figure and describe in the *Zuträge*.

Hübner then gave a list of the names of the first 75 of the species that he proposed to figure. Against each name, he placed two numbers, which correspond with the numbers of the two figures of that species when later they were illustrated in the *Zuträge*. The numbers so given run consecutively, the last being no. 150. This list extends from the middle of page 3 to the middle of page 6 of the pamphlet.

The remainder of the pamphlet is devoted to a detailed description of the first four species given in his list, *i.e.* those numbered 1 & 2, 3 & 4, 5 & 6, and 7 & 8. The pamphlet ends abruptly in the middle of the second sentence of the description of the species numbered 9 & 10.

A comparison of the names given in this pamphlet with those given in the first volume of Hübner's well-known *Zuträge zur Sammlung exotische Schmetterlinge* proves beyond question that the names given in the pamphlet refer to the first 75 of the species figured in the first volume of that work, the title page of which is dated 1818. All of the generic names used in the pamphlet are different from those employed in the *Zuträge*, but 54 out of the 75 specific names are identical and 11 more differ only in spelling. In 8 cases only, are different names used. In addition, the references to the figure numbers are in every case the same.

The first conclusion to be drawn from this evidence is that the first four species figured and named in the *Zuträge* of 1818 were fully described in the pamphlet (the *Erste Zuträge*) of 1808. It is therefore from 1808 that the names of these species should be dated. Further they must be regarded as having been first described under the generic and specific names given in the *Erste Zuträge* of 1808 and not under those assigned to them in the first volume of the *Zuträge* of 1818.

In the absence of evidence to the contrary, it has been assumed by all bibliographers that the whole of each volume (termed " Hundert " on the title page because each volume contained figures of 100 species) of the *Zuträge zur*

Sammlung exotische Schmetterlinge was published as a complete unit and that each volume should therefore be regarded as having been published in the year cited on the title page. Hübner's *Verzeichniss der fertigen Blätter und Werke* of the 12th March, 1814 (a facsimile of which I have given in the foregoing paper) shows, however, that at least the first volume of the *Zuträge* was published in parts, like Hübner's other works, and that the first 25 plates of this volume had been published by March 1814. The remaining plates (plates [26]-[35]), together with the whole of the text and the title page, must therefore have been published between March 1814 and some date in 1818 (the date on the title page).

The plates of the *Zuträge* are unnumbered and are not inscribed with the names of the species figured. Each figure is, however, numbered and it is by these numbers that the names of the species are identifiable from the text. It is at this point that the second important piece of evidence is afforded by the *Erste Zuträge* of 1808, for by the numbers which it gives it is possible to affix a name to each of the species figured on the first 25 plates of the first volume of the *Zuträge* of 1818. Thus we see that by March 1814, each of these species had been figured (in the first volume of the *Zuträge*) and had been given a name (in the *Erste Zuträge* of 1808). With the exception of those figured on plates [1] and [2] (*i.e.* fig. 1–12), all these species must therefore in future be recognised as having been published by 1814 (instead of by 1818 as hitherto supposed) and must bear the names given in the *Erste Zuträge* of 1808 and not those given in the well-known text of the *Zuträge*, in every case in which the names given in the two works differ. As regards the species figured on plates [1] and [2], I have shown above that those numbered 1 to 8 must be dated 1808. Prospectus IV dated 6 April, 1809, the text of which is given by Fernald in his pamphlet "On the dates of Jacob Hübner's *Sammlung europaïscher Schmetterlinge* and some of his other works" published in 1905, states that the first two plates of the *Zuträge* * had been published by that time. The species illustrated on fig. 9–12 should therefore be dated 1808–1809. In the following list I give a collation of the 75 species affected. For each species I have retained the earlier of the two names given by Hübner, and I have not attempted either to determine the correct generic names of the various species or to determine whether the specific names used by Hübner are the oldest valid names for the species in question. I propose myself to do this elsewhere for the Rhopalocera and no doubt some specialist in the Heterocera will do the same for the species of that sub-order affected.

Najas Alcandra, Hb., 1808

Najas Alcandra, Hb., 1808, Erste Zuträge : 3, 7
Hb., [1808]–[1809], Zuträge Samml. exot. Schmett. 1 pl. [1] fig. 1, 2
Symphaedra Alcandra, Hb., [1814]–[1818], *ibid.* 1 : 7

Hypercompe Tenera, Hb., 1808

Hypercompe Tenera, Hb., 1808, Erste Zuträge : 3, 7
Hb., [1808]–[1809], Zuträge Samml. exot. Schmett. 1 pl. [1] fig. 3, 4
Cycnia Tenera, Hb., [1814]–[1818], *ibid.* 1 : 7

Euclidia Gracilis, Hb., 1808

Euclidia Gracilis, Hb., 1808, Erste Zuträge : 3, 8
Hb., [1808]–[1809], Zuträge Samml. exot. Schmett. 1 pl. [1] fig. 5, 6
Schinia Gracilenta, Hb., [1814]–[1818], *ibid.* 1 : 8

Oreas Gemma, Hb., 1808

Oreas Gemma, Hb., 1808, Erste Zuträge : 3, 8
Hb., [1808]–[1809], Zuträge Samml. exot. Schmett. 1 pl. [2] fig. 7, 8
Neonympha Gemma, Hb., [1814]–[1818], *ibid.* 1 : 8

* The *Zuträge* was inadvertently referred to as the "*Beiträge*" in this Prospectus.

Glaucopis Psophis, Hb., [1808]–[1809]

Glaucopis Psophis, Hb., 1808, Erste Zuträge : 3 (ref. fig. 9, 10)
Hb., [1808]–[1809], Zuträge Samml. exot. Schmett. 1 pl. [2] fig. 9, 10
Eunomia Columbina, Hb., [1814]–[1818] *ibid.* 1 : 8

Euclidia Graphica, Hb., [1808]–[1809]

Euclidia Graphica, Hb., 1808, Erste Zuträge : 3 (ref. fig. 11, 12)
Hb., [1808]–[1809], Zuträge Samml. exot. Schmett. 1 pl. [2] fig. 11, 12
Drasteria Graphica, Hb., [1814]–[1818], *ibid.* 1 : 8

Nerēis Phaedusa, Hb., [1809]–[1814]

Nerēis Phaedusa, Hb., 1808, Erste Zuträge : 4 (ref. fig. 13, 14)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [3] fig. 13, 14
Stalachtis Phaedusa, Hb., [1814]–[1818], *ibid.* 1 : 9

Glaucopis Phemonoë, Hb., [1809]–[1814]

Glaucopis Phemonoë, Hb., 1808, Erste Zuträge : 4 (ref. fig. 15, 16)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [3] fig. 15, 16
Antichloris Phemonoë, Hb., [1814]–[1818], *ibid.* 1 : 9

Hypocrita Cymaria, Hb., [1809]–[1814]

Hypocrita Cymaria, Hb., 1808, Erste Zuträge : 4 (ref. fig. 17, 18)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [3] fig. 17, 18
Dioptis Cyma, Hb., [1814]–[1818], *ibid.* 1 : 9

Erpyzon Lituralis, Hb., [1809]–[1814]

Erpyzon Lituralis, Hb, 1808, Erste Zuträge : 4 (ref. fig. 19, 20)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [4] fig. 19, 20
Epizeuxis Lituralis, Hb., [1814]–[1818], *ibid.* 1 : 9

Epirrita Tipulata, Hb., [1809]–[1814]

Epirrita Tipulata, Hb., 1808, Erste Zuträge : 4 (ref. fig. 21, 22)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [4] fig. 21, 22
Macrosoma Tipulata, Hb., [1814]–[1818], *ibid.* 1 : 10

Gloce Margaritifera, Hb., [1809]–[1814]

Gloce Margaritifera, Hb., 1808, Erste Zuträge : 4 (ref. fig. 23, 24)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [4] fig. 23, 24
Hypsoropha Monilis, Hb., [1814]–[1818], *ibid.* 1 : 10

Diphthera Hebraeicum, Hb., [1809]–[1814]

Diphthera Hebraeicum, Hb., 1808, Erste Zuträge : 4 (ref. fig. 25, 26)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [5] fig. 25, 26
Polygrammate Hebraeicum, Hb., [1814]–[1818], *ibid.* 1 : 10

Gloce Monilis, Hb., [1809]–[1814]

Gloce Monilis, Hb., 1808, Erste Zuträge : 4 (ref. fig. 27, 28)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [5] fig. 27, 28
Hypsoropha Hormos, Hb., [1814]–[1818], *ibid.* 1 : 10

Blephara Elonympha, Hb., [1809]–[1814]

Blephara Elonympha, Hb., 1808, Erste Zuträge : 4 (ref. fig. 29, 30)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [5] fig. 29, 30
Ephesia Elonympha, Hb., [1814]–[1818], *ibid.* 1 : 11

Lemur Horrida, Hb., [1809]–[1814]

Lemur Horrida, Hb., 1808, Erste Zuträge : 4 (ref. fig. 31, 32)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [6] fig. 31, 32
Zale Horrida, Hb., [1814]–[1818], *ibid.* 1 : 11

Euclidia Trifascia, Hb., [1809]–[1814]

Euclidia Trifascia, Hb., 1808, Erste Zuträge : 4 (ref. fig. 33, 34)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [6] fig. 33, 34
Schinia Trifascia, Hb., [1814]–[1818], *ibid.* 1 : 11

Ptilodon Uncium, Hb., [1809]–[1814]

Ptilodon Uncium, Hb., 1808, Erste Zuträge : 4 (ref. fig. 35, 36)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [6] fig. 35, 36
Gonodonta Uncina, Hb., [1814]–[1818], *ibid.* 1 : 11

Hamadryas Jynx, Hb., [1809]–[1814]

Hamadryas Jynx, Hb., 1808, Erste Zuträge : 4 (ref. fig. 37, 38)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [7] fig. 37, 38
Elymnias Jynx, Hb., [1814]–[1818], *ibid.* 1 : 12

Sphecomorpha Polistes, Hb., [1809]–[1814]

Sphecomorpha Polistes, Hb., 1808, Erste Zuträge : 4 (ref. fig. 39, 40)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [7] fig. 39, 40
Pseudosphex Polistes, Hb., [1814]–[1818], *ibid.* 1 : 12

Chrysaor Erythropterus, Hb., [1809]–[1814]

Chrysaor Erythropterus, Hb., 1808, Erste Zuträge : 4 (ref. fig. 41, 42)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [8] fig. 41, 42
Empyreuma Pugione, Hb., [1814]–[1818], *ibid.* 1 : 12

Hypocrita Chrysorrhoea, Hb., [1809]–[1814]

Hypocrita Chrysorrhoea, Hb., 1808, Erste Zuträge : 4 (ref. fig. 43, 44)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [8] fig. 43, 44
Hyelosia Pyrrhorhoea, Hb., [1814]–[1818], *ibid.* 1 : 12

Ascalapha Rufimargo, Hb., [1809]–[1814]

Ascalapha Rufimargo, Hb., 1808, Erste Zuträge : 4 (ref. fig. 45, 46)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [8] fig. 45, 46
Phoberia Rufimargo, Hb., [1814]–[1818], *ibid.* 1 : 13

Mancipium Chorographum, Hb., [1809]–[1814]

Mancipium Chorographum, Hb., 1808, Erste Zuträge : 4 (ref. fig. 47, 48)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [9] fig. 47, 48
Leptosia Chlorographa, Hb., [1814]–[1818], *ibid.* 1 : 13

Sphecomorpha Zethus, Hb., [1809]–[1814]

Sphecomorpha Zethus, Hb., 1808, Erste Zuträge : 4 (ref. fig. 49, 50)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [9] fig. 49, 50
Pseudosphex Zethus, Hb., [1814]–[1818], *ibid.* 1 : 13

Hipocrita Judas, Hb., [1809]–[1814]

Hipocrita Judas, Hb., 1808, Erste Zuträge : 4 (ref. fig. 51, 52)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [9] fig. 51, 52
Apistosia Judas, Hb., [1814]–[1818], *ibid.* 1 : 13

Jaspidia Nana, Hb., [1809]–[1814]

Jaspidia Nana, Hb., 1808, Erste Zuträge : 4 (ref. fig. 53, 54)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [10] fig. 53, 54
Cryphia Nana, Hb., [1814]–[1818], *ibid.* 1 : 14

Euclidia Bifascia, Hb., [1809]–[1814]

Euclidia Bifascia, Hb., 1808, Erste Zuträge : 4 (ref. fig. 55, 56)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [10] fig. 55, 56
Schinia Bifascia, Hb., [1814]–[1818], *ibid.* 1 : 14

Blepharum Amica, Hb., [1809]–[1814]

Blepharum Amica, Hb., 1808, Erste Zuträge : 4 (ref. fig. 57, 58)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [10] fig. 57, 58
Ephesia Amica, Hb., [1814]–[1818], *ibid.* 1 : 14

Achatia Cora, Hb., [1809]–[1814]

Achatia Cora, Hb., 1808, Erste Zuträge : 4 (ref. fig. 59, 60)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [11] fig. 59, 60
Cerma Cora, Hb., [1814]–[1818], *ibid.* 1 : 14

Xanthia Rufago, Hb., [1809]–[1814]

Xanthia Rufago, Hb., 1808, Erste Zuträge : 4 (ref. fig. 61, 62)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [11] fig. 61, 62
Jodia Rufago, Hb., [1814]–[1818], *ibid.* 1 : 15

Ascalapha Bistria, Hb., [1809]–[1814]

Ascalapha Bistria, Hb., 1808, Erste Zuträge : 4 (ref. fig. 63, 64)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [11] fig. 63, 64
Parallelia Bistriaris, Hb., [1814]–[1818], *ibid.* 1 : 15

Glaucopis Maja, Hb., [1809]–[1814]

Glaucopis Maja, Hb., 1808, Erste Zuträge : 4 (ref. fig. 65, 66)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [12] fig. 65, 66
Macrocneme Maja, Hb., [1814]–[1818], *ibid.* 1 : 15

Prophyla Turbulenta, Hb., [1809]–[1814]

Prophyla Turbulenta, Hb., 1808, Erste Zuträge : 4 (ref. fig. 67, 68)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [12] fig. 67, 68
Phosphila Turbulenta, Hb., [1814]–[1818], *ibid.* 1 : 15

Euclidia Cuspidea, Hb., [1809]–[1814]

Euclidia Cuspidea, Hb., 1808, Erste Zuträge : 4 (ref. fig. 69, 70)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [12] fig. 69, 70
Drasteria Cuspidea, Hb., [1814]–[1818], *ibid.* 1 : 16

Agrotis Grata, Hb., [1809]–[1814]

Agrotis Grata, Hb., 1808, Erste Zuträge : 4 (ref. fig. 71, 72)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [13] fig. 71, 72
Elaphria Grata, Hb., [1814]–[1818], *ibid.* 1 : 16

Gloce Chloropha, Hb., [1809]–[1814]

Gloce Chloropha, Hb., 1808, Erste Zuträge : 5 (ref. fig. 73, 74)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [13] fig. 73, 74
Xestia Chloropha, Hb., [1814]–[1818], *ibid.* 1 : 16

Ascalapha Atomaris, Hb., [1809]–[1814]

Ascalapha Atomaris, Hb., 1808, Erste Zuträge : 5 (ref. fig. 75, 76)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [13] fig. 75, 76
Phoberia Atomaris, Hb., [1814]–[1818], *ibid.* 1 : 16

Mancipium Hierte, Hb., [1809]–[1814]

Mancipium Hierte, Hb., 1808, Erste Zuträge : 5 (ref. fig. 77, 78)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [14] fig. 77, 78
Pontia Hierte, Hb., [1814]–[1818], *ibid.* 1 : 17

Oreas Macrops, Hb., [1809]–[1814]

Oreas Macrops, Hb., 1808, Erste Zuträge : 5 (ref. fig. 79, 80)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [14] fig. 79, 80
Mycalesis Otrea, Hb., [1814]–[1818], *ibid.* 1 : 17

Heliothis Jucunda, Hb., [1809]–[1814]

Heliothis Jucunda, Hb., 1808, Erste Zuträge : 5 (ref. fig. 81, 82)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [15] fig. 81, 82
Melipotis Jucunda, Hb., [1814]–[1818] *ibid.* 1 : 17

Oreas Diplops, Hb., [1809]–[1814]

Oreas Diplops, Hb., 1808, Erste Zuträge : 5 (ref. fig. 83, 84)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [15] fig. 83, 84
Ypthima Philomela, Hb., [1814]–[1818], *ibid.* 1 : 17

Jaspidia Bellicula, Hb., [1809]–[1814]

Jaspidia Bellicula, Hb., 1808, Erste Zuträge : 5 (ref. fig. 85, 86)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [15] fig. 85, 86
Lithacodia Bellicula, Hb., [1814]–[1818], *ibid.* 1 : 18

Rusticus Leucophaeus, Hb., [1809]–[1814]

Rusticus Leucophaeus, Hb., 1808, Erste Zuträge : 5 (ref. fig. 87, 88)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [16] fig. 87, 88
Bithys Leucophaeus, Hb., [1814]–[1818], *ibid.* 1 : 18

Hipocrita Tendinosa, Hb., [1809]–[1814]

Hipocrita Tendinosa, Hb., 1808, Erste Zuträge : 5 (ref. fig. 89, 90)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [16] fig. 89, 90
Phaeochlaena Tendinosa, Hb., [1814]–[1818], *ibid.* 1 : 18

Erpyzon Decoralis, Hb., [1809]–[1814]

Erpyzon Decoralis, Hb., 1808, Erste Zuträge : 5 (ref. fig. 91, 92)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [16] fig. 91, 92
Pangrapta Decoralis, Hb., [1814]–[1818], *ibid.* 1 : 18

Glaucopis Melanitis, Hb., [1809]–[1814]

Glaucopis Melanitis, Hb., 1808, Erste Zuträge : 5 (ref. fig. 93, 94)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [17] fig. 93, 94
Centronia Melanitis, Hb., [1814]–[1818], *ibid.* 1 : 19

Palpita Illibalis, Hb., [1809]–[1814]

Palpita Illibalis, Hb., 1808, Erste Zuträge : 5 (ref. fig. 95, 96)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [17] fig. 95, 96
Hapalia Illibalis, Hb., [1814]–[1818], *ibid.* 1 : 19

Lemur Lunifera, Hb., [1809]–[1814]

Lemur Lunifera, Hb., 1808, Erste Zuträge : 5 (ref. fig. 97, 98)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [17] fig. 97, 98
Phaeocyma Lunifera, Hb., [1814]–[1818], *ibid.* 1 : 19

Rusticus Bubastus, Hb., [1809]–[1814]

Rusticus Bubastus, Hb., 1808, Erste Zuträge : 5 (ref. fig. 99, 100)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [18] fig. 99, 100
Hemiargus Antibubastus, Hb., [1814]–[1818], *ibid.* 1 : 19

Palpita Vitralis, Hb., [1809]–[1814]

Palpita Vitralis, Hb., 1808, Erste Zuträge : 5 (ref. fig. 101, 102)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [18] fig. 101, 102
Diaphania Vitralis, Hb., [1814]–[1818], *ibid.* 1 : 20

Erastria Pustularia, Hb., [1809]–[1814]

Erastria Pustularia, Hb., 1808, Erste Zuträge : 5 (ref. fig. 103, 104)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [18] fig. 103, 104
Hypagyrtis Pustularia, Hb., [1814]–[1818], *ibid.* 1 : 20

Oreas Mollina, Hb., [1809]–[1814]

Oreas Mollina, Hb., 1808, Erste Zuträge : 5 (ref. fig. 105, 106)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [19] fig. 105, 106
Euptychia Mollina, Hb., [1814]–[1818], *ibid.* 1 : 20

Apatele Tritona, Hb., [1809]–[1814]

Apatele Tritona, Hb., 1808, Erste Zuträge : 5 (ref. fig. 107, 108)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [19] fig. 107, 108
Triaena Tritona, Hb., [1814]–[1818], *ibid.* 1 : 21

Tribonophora Pygmaea, Hb., [1809]–[1814]

Tribonophora Pygmaea, Hb., 1808, Erste Zuträge : 5 (ref. fig. 109, 110)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [19] fig. 109, 110
Paectes Pygmaea, Hb., [1814]–[1818], *ibid.* 1 : 21

Petrophora Bistrigata, Hb., [1809]–[1814]

Petrophora Bistrigata, Hb., 1808, Erste Zuträge : 5 (ref. fig. 111, 112)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [20] fig. 111, 112
Ptichodis Bistrigata, Hb., [1814]–[1818], *ibid.* 1 : 21

Palpita Argyralis, Hb., [1809]–[1814]

Palpita Argyralis, Hb., 1808, Erste Zuträge : 5 (ref. fig. 113, 114)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [20] fig. 113, 114
Diastictis Argyralis, Hb., [1814]–[1818], *ibid.* 1 : 21

Heliaca Punicalis, Hb., [1809]–[1814]

Heliaca Punicalis, Hb., 1808, Erste Zuträge : 5 (ref. fig. 115, 116)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [20] fig. 115, 116
Haematia Phoenicealis, Hb., [1814]–[1818], *ibid.* 1 : 22

Ascalapha Colliquata, Hb., [1809]–[1814]

Ascalapha Colliquata, Hb., 1808, Erste Zuträge : 5 (ref. fig. 117, 118)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [21] fig. 117, 118
Coenipeta Colliquens, Hb., [1814]–[1818], *ibid.* 1 : 22

Heliaca Octomacula, Hb., [1809]–[1814]

Heliaca Octomacula, Hb., 1808, Erste Zuträge : 5 (ref. fig. 119, 120)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [21] fig. 119, 120
Alypia Octomaculalis, Hb., [1814]–[1818], *ibid.* 1 : 22

Rusticus Melinus, Hb., [1809]–[1814]

Rusticus Melinus, Hb., 1808, Erste Zuträge : 5 (ref. fig. 121, 122)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [21] fig. 121, 122
Strymon Melinus, Hb., [1814]–[1818], *ibid.* 1 : 22

Nerēis Sao, Hb., [1809]–[1814]

Nerēis Sao, Hb., 1808, Erste Zuträge : 5 (ref. fig. 123, 124)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [22] fig. 123, 124
Hymenitis Sao, Hb., [1814]–[1818], *ibid.* 1 : 23

Tetrachila Respersella, Hb., [1809]–[1814]

Tetrachila Respersella, Hb., 1808, Erste Zuträge : 5 (ref. fig. 125, 126)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [22] fig. 125, 126
Thopeutis Respersalis, Hb., [1814]–[1818], *ibid.* 1 : 23

Ascalapha Pyralis, Hb., [1809]–[1814]

Ascalapha Pyralis, Hb., 1808, Erste Zuträge : 5 (ref. fig. 127, 128)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [22] fig. 127, 128
Hemeroplanis Pyralis, Hb., [1814]–[1818], *ibid.* 1 : 23

Nerëis Aoede, Hb., [1809]–[1814]

Nerëis Aoede, Hb., 1808, Erste Zuträge : 5 (ref. fig. 129, 130)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [23] fig. 129, 130
Migonitis Aoede, Hb., [1814]–[1818], *ibid.* 1 : 23

Idia Longalis, Hb., [1809]–[1814]

Idia Longalis, Hb., 1808, Erste Zuträge : 5 (ref. fig. 131, 132)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [23] fig. 131, 132
Micropus Longalis, Hb., [1814]–[1818], *ibid.* 1 : 24

Glaucopis Vulcanus, Hb., [1809]–[1814]

Glaucopis Vulcanus, Hb., 1808, Erste Zuträge : 6 (ref. fig. 133, 134)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [23] fig. 133, 134
Antichloris Caca, Hb., [1814]–[1818], *ibid.* 1 : 24

Rusticus Mopsus, Hb., [1809]–[1814]

Rusticus Mopsus, Hb., 1808, Erste Zuträge : 6 (ref. fig. 135, 136)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [24] fig. 135, 136
Chrysophanus Mopsus, Hb., [1814]–[1818], *ibid.* 1 : 24

Palpita Mellinalis, Hb., [1809]–[1814]

Palpita Mellinalis, Hb., 1808, Erste Zuträge : 6 (ref. fig. 137, 138)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [24] fig. 137, 138
Epicorsia Mellinalis, Hb., [1814]–[1818], *ibid.* 1 : 24

Terpne Bistrigaria, Hb., [1809]–[1814]

Terpne Bistrigaria, Hb., 1808, Erste Zuträge : 6 (ref. fig. 139, 140)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [24] fig. 139, 140
Nemoria Bistriaria, Hb., [1814]–[1818], *ibid.* 1 : 25

Nerëis Apseudes, Hb., [1809]–[1814]

Nerëis Apseudes, Hb., 1808, Erste Zuträge : 6 (ref. fig. 141, 142)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [25] fig. 141, 142
Sicyonia Apseudes, Hb., [1814]–[1818], *ibid.* 1 : 25

Elasmion Ligulella, Hb., [1809]–[1814]

Elasmion Ligulella, Hb., 1808, Erste Zuträge : 6 (ref. fig. 143, 144)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [25] fig. 143, 144
Dichomeris Ligulella, Hb., [1814]–[1818], *ibid.* 1 : 25

Teredo Ambigua, Hb., [1809]–[1814]

Teredo Ambigua, Hb., 1808, Erste Zuträge : 6 (ref. fig. 145, 146)
Hb., [1809]–[1814], Zuträge Samml. exot. Schmett. 1 pl. [25] fig. 145, 146
Hypopta Ambigua, Hb., [1814]–[1818], *ibid.* 1 : 25

The *Erste Zuträge* gave also the names of the two species proposed to be figured on the 26th plate of the *Zuträge*. These are as follows :—

Ascalapha Amethystina fig. 147, 148, for the species subsequently named *Hemeroblemma Amethystina* on page 26 of the *Zuträge*; and
Achatia Stalachtis fig. 149, 150, for the species named *Triphassa Stalachtis* on the same page of the *Zuträge*.

As plate [26] was not published by 1814, it must be treated as having been published in the period 1814–1818, *i.e.* in the same period as was published the text of the *Zuträge*, with which therefore it ranks equally for purposes of priority. Thus the names given in the *Erste Zuträge* to the two species figured on plate [26] have exactly the same priority as the names given to them in text of the *Zuträge*.

A NEW GENUS OF REDUVIIDAE (HEM.) FROM PAPUA

By L. E. Cheesman, F.R.E.S.

Sub.-fam. Harpactorinae.

Gonteosphodrus, gen. n.

Head not quite as long as pronotum, the anteocular area without spines, equals the postocular area in length. Rostrum with basal segments extending slightly beyond middle of eyes, the second 1¼ the length of the first. Pronotum with median, longitudinal impression of anterior lobe percurrent; anterior angles strongly produced into tubercles which are slightly drawn out laterally and upwards, the apex with a tuft of short hairs. Posterior lobe densely covered with shortish erect hairs; lateral margins not reflexed, narrowly laminate, inner side of laminae slightly impressed; humeral angles rounded. Scutellum strongly swollen, obtuse at the apex, densely pilose.

Hemielytra extending slightly beyond apex of abdomen. Fifth and sixth abdominal segments strongly expanded laterally, and vertically reflexed. Femora and tibiae densely pilose. Claws dentate.

Genotype: *Gonteosphodrus bicolor*, sp. n. Near *Agriosphodrus*, Stål, but differs in the swollen scutellum, shorter head, pilose posterior pronotal lobe, in the regular dilatation of connexivum, and in the dense, long pubescence on femora and tibiae.

Gonteosphodrus bicolor, sp. n.

♀. Black; posterior lobe of pronotum fulvous, anterior lobe, head, basal ¾ of first antennal segment, and fore-legs, light brown; hemielytra brownish-black with a blue-green iridescence.

Head pilose, the hair longish, pale brown, in tufts between the antennae, short and dense on the tylus. Antennae rather slender with long fine hairs; first segment slightly thickened, twice the length of the head; second segment about ⅓ the length of the first and more slender; third segment ⅔ the length of the second; fourth segment at least more than twice the length of the third (apex missing). Anterior pronotal lobe shining, bare except for a row of long, pale brown hairs each side of the median impression, and a very few scattered hairs; posterior lobe densely pilose, the hair fulvous, short and in living insects always covered with a viscid fluid as is also the long hair on the legs. Scutellum densely covered with long, coarse, black hair mingled with shorter hair. Legs densely pilose; apical third of femora and basal half of tibiae thickened and the hair longer.

Length, 21 mm. Breadth across humeral angles, 5·5 mm.

Papua: Kokoda, 1,200 ft., 1 ♀, v.1933 (Type). Mafulu, 4,000 ft., 1 ♂ 2 ♀♀, i.1934 (*L. E. Cheesman*).

The specimens from Mafulu have the foreparts much darker in colour, the anterior lobe of pronotum, front legs, head and basal segment of antennae, dark red-brown.

These Reduviids were not plentiful in either locality. They frequent open clearings and are found sitting upon leaves or stems of short scrub, or upon small, flowering plants.

A peculiar character is that they are covered with a viscid fluid to which adhere various forms of débris from their surroundings, such as grass-seed, bracts, husks, bits of leaf, dead insects, and parts of legs, wings, etc. One specimen which I saw on a *Zinnia* blossom was covered in pollen and had two yellow petals sticking to the thorax.

On two occasions I kept a specimen for five days; at the end of that time the viscid fluid on the hair was still moist. I therefore concluded that it was a secretion.

Dissections of the middle and fore legs made by Dr. Eltringham prove that there is a hypodermal secreting layer connected with pore canals in the cuticle, but more material is required before investigations can be carried further.

The principal food of *Gonteosphodrus bicolor* is Aculeate Hymenoptera, but specimens kept under observation also took Diptera and small moths. When waiting for prey, any vibration, such as passing something rapidly through the air in front of them, or touching the plant they are sitting on, causes the bugs to take a particular attitude with the fore legs held in a horizontal position above the head. The fore tarsi are not modified as in members of the subfamily Apiomerinae, and the fore legs are used in walking. The methods of catching small and large insects are different. When *Trigona* bees, small Halictine bees, or small wasps fly near enough the rostrum is thrown up with a forward lunge, the insect is impaled, and then held in mid-air until the bug has finished it, the fore legs being brought down to the ground. When larger Aculeates are captured, such as *Paracolletes* bees, larger Halictines, or *Rhopalidia* wasps, both rostrum and fore legs are used to hold down the prey. In every case observed the rostrum was thrust into the abdomen.

These bugs are very sluggish in movement, but the action of throwing out rostrum and fore legs is so swift that, however many times I watched them, I could not be certain with which they knocked down the flying insect.

Since they do not move about actively they depend for food upon insects coming within reach. The general bee-coloration is no doubt an advantage to them in their open position on plants, and especially on blossoms. I think it probable too that the viscid fluid possesses some scent attractive to insects.

Reduviid larvae taken at the same time in the same localities were also covered in a glutinous material. These may be immature forms of the same species. They were chiefly found on flowering grass and covered with awns; since they push their way up the grass-head from below, the awns take a natural position and they are hardly distinguishable from their surroundings; but I have also taken them sitting in the middle of a large leaf where their disguise makes them particularly conspicuous.

My thanks are due to Mr. W. E. China for kindly helping me in the determination of this genus.

CERATOPOGONIDAE (DIPT.) FROM THE RIVER AMAZON

By J. W. S. Macfie.

see p. 89

This small collection of biting midges was made by Dr. E. M. Lourie on the decks or in the cabins of a steamer lying off Tutoia, R. Amazon, Brazil, on the 27th and 28th of April, and the 27th of May, 1934. All the specimens were taken at night, between 7 p.m. and midnight. They were preserved in spirit.

The collection consists of 121 specimens, 109 females and 12 males, most of which (94) are a species of *Culicoides*. The other specimens include species of *Forcipomyia*, *Lasiohelea*, *Atrichopogon*, *Culicoides*, *Dasyhelea*, and *Eukraiohelea*. So far as can be ascertained most of the species are new, and they are therefore described and named here. The method of description and the terms used are those that I have adopted in a number of recent papers. The unit referred to in measurements is approximately 3·6 μ.

Types of new species have been placed in the British Museum (Natural History); a second set of specimens is in the Department of Entomology, London School of Hygiene and Tropical Medicine.

Forcipomyia spp.

11 ♀♀.

As only females were collected, and as in this genus the chief specific characters are often found in the males, it would be inadvisable to attempt an exact identification of these specimens. Two have the wings adorned with numerous pale areas and are somewhat similar to *F. lepidota*, Ingram & Macfie, but the femora of the hind legs have the proximal half pale, and the distal half dark brown. Two resemble *F. castanea* (Walk.) var. *incompti-feminibus* (Aust.). Five resemble closely *F. inornatipennis* (Aust.) var. *ornaticrus*, Ingram & Macfie. The remaining two also resemble *F. inornati-pennis*, but differ in having the third palpal segment less inflated, and the spermathecae smaller.

Lasiohelea **louriei,** sp. n.

A brown species with narrow scales on the legs in addition to bristles and hairs, with the wings densely clothed with macrotrichia, the palp without a pit but with the last two segments fused, and the T. R. 1·5.

♀. Length of wing, 1·3 mm.; greatest breadth of wing, 0·4–0·5 mm.

Head rather dark brown. Eyes bare. Palpi darkish brown: segment 3 without pit; 4 and 5 fused, together shorter than 3 (17 : 21). Antennae darkish brown: segments 4–10 oval to almost flask-shaped, from 11 by 8–9 to 13 by 7 units; 11–14 elongate, subequal, about 27–29 by 7 (maximum) units; 15 about 38 (including stylet of 5–6 units) by 6 units. The combined lengths of segments 11–15, 4–10, and 3–10 about 145, 85, and 100 units respectively. *Thorax* brown, not very hairy. Scutellum brown, about same colour as scutum: bearing a transverse row of about 10 bristles, and a few small hairs. *Wings* unadorned, densely clothed with macrotrichia which cover whole surface. No bare areas along veins. No definite scales, but macrotrichia on costa and radial areas rather darker and coarser than the rest. Wing-tip not very blunt: anal cell poorly developed. Fringe hairs lanceolate and fringed. Costa reaching well beyond middle of wing. First radial cell obliterated; second long and narrow. Fork of *Cu* at about level of base of second radial cell. Halteres with whitish knobs. *Legs* almost uniformly yellowish-brown, but terminal segments of tarsi more or less infuscated: well clothed with bristles and hairs, some of which are very long; and bearing also narrow scales which, however, are rather inconspicuous.

T. R. about 1·5. Claws slender, curved. Empodium normal. *Abdomen* brown, rather darker than thorax. Spermatheca single, large, well chitinised, sparsely pitted all over, partially collapsed in the specimen examined, but apparently oval, tapering towards the duct: total length about 120 μ, and greatest breadth about 80 μ.

1 ♀.

This species may be distinguished from *L. shannoni*, I. & M., a brown species also found in South America (Chile), and from *L. stylifer* (Lutz) by numerous characters, for example by the T. R. (tarsal ratio) which is about 1·5 instead of about 2·5.

Atrichopogon **glaber,** sp. n.

A small brown species, with very dark brown antennae, brown legs, the wings without macrotrichia, and the abdomen with characteristic ventral armature.

♀. Length of wing, about 1 mm.; greatest breadth of wing, about 0·4 mm.

Head yellowish-brown, but darker than thorax. Eyes hairy. Palpi very dark brown: third segment sub-cylindrical, with small deep pit; lengths of last three segments about

FIG. 1.—*Atrichopogon glaber*, sp. n., ventral view of posterior extremity of abdomen of female showing armature.

12, 8, and 9 units respectively. Antennae with torus yellowish-brown, and flagellar segments very dark brown: segments 4–10 from sub-spherical to oval, in one specimen from 6 by 7 to 7 by 6 units; 11–14 elongate, sub-equal, about 14–17 by 5 units; 15 about 25 (including stylet of about 3 units) by 5 units. The combined lengths of segments 11–15, 4–10, and 3–10 about 84, 45, and 53 units respectively. *Thorax* yellowish-brown, with traces of usual adornment. Hairs small and scanty: three large dark bristles on each side posteriorly. Scutellum about same colour as scutum: bearing 4 dark bristles, and 5–6 small hairs. *Wings* unadorned, without macrotrichia. Costa extending two-thirds length of wing. Radial cells almost obliterated, mere slits: second about twice as long as first. Petiole of *M* about as long as cross-vein. Fork of *Cu* distal to that of *M*, at about level of middle of first radial cell. Angle formed by branches of *Cu* slightly less than right angle. Halteres with whitish knobs. *Legs* almost uniformly pale yellowish-brown. T. R. 2·6–2·7. Form of segments, claws, and empodium normal. *Abdomen* brownish, paler than scutum, with very few hairs. Spermatheca single, well chitinised, oval, tapering to duct: total length about 100 μ, and greatest breadth about 63 μ. Ventral armature (fig. 1) consisting of a fringe of delicate processes anterior to vulva, and on posterior margin of seventh sternite, in the middle line, a pair of large curved processes (each bifurcated) which arise from a short common stem.

2 ♀♀.

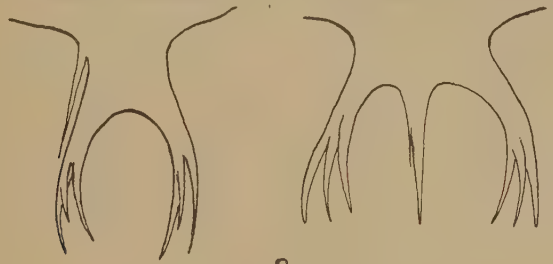
This species resembles in some respects *A. harpagonum*, Macfie, a Sumatran species in which, however, the legs are banded, and the abdomen is armed differently. It is smaller than *A. mendozae*, I. & M., a brown insect found in Argentina, and differs also in other characters, *e.g.*, in having the wings devoid of macrotrichia. The Colombian species *A. auricoma*, Kieff., appears to be closely related, but it also is larger, and for comparison further details regarding structure are necessary.

Atrichopogon **insigniventris,** sp. n.

A very dark brown species, with darkish brown legs, the wings with macrotrichia in cells *R* 5 and *M* 1, and the abdomen with armature.

♀. Length of wing, about 1·3 mm.; greatest breadth of wing, about 0·5 mm.

Head very dark brown. Eyes hairy. Palpi very dark brown: third segment subcylindrical, with small deep pit; lengths of last three segments about 17, 9, and 10 units respectively. Antennae very dark brown, torus about as dark as rest: segments 4–10 from sub-spherical to oval, in one specimen from 8 by 8 to 9 by 7 units; 11–14 elongate, successively longer, from about 18 by 7 to 23 by 6 units; 15 about 38 (including long slender stylet of about 6 units) by 6 units. The combined lengths of segments 11–15, 4–10, and 3–10 about 123, 57, and 69 units respectively. *Thorax* very dark brown, with usual scutal



2

Fig. 2.—*Atrichopogon insigniventris*, sp. n., two forms of ventral armature of abdomen of female.

adornment, and a clear area on each side immediately anterior to scutellum. Scutellum dark brown, but paler than scutum; bearing 4 bristles, and a few small hairs. *Wings* unadorned, the veins a little infuscated. Macrotrichia scanty, confined to tip in cell *R* 5, a few in cell *M* 1, and none or just one or two in *M* 2. Costa extending nearly three-quarters length of wing. Both radial cells well formed: second nearly four times as long as first. Petiole of *M* about same length as cross-vein or a little shorter. Fork of *Cu* distal to that of *M*, at about level of middle of first radial cell; the angle formed by its branches much less than a right angle. Halteres with pale, brownish knobs. *Legs* almost uniformly darkish brown. T. R. about 2·6. Form of segments, claws, and empodium normal. *Abdomen* dark brown, but not so dark as thorax. Hairs scanty. Spermatheca single, well chitinised, pitted at base, oval, tapering to duct; total length about 107 μ, and greatest breadth about 81 μ. A pad of bristles present on each side of vulva, but no fringe of delicate processes. On posterior margin of seventh sternite a bifid process similar to that in the last species (*A. glaber*), but more branched, and rather variable, the forms in the two specimens examined being as shown in the figure (fig. 2).

2 ♀♀.

Atrichopogon **umbratilis,** sp. n.

A very dark brown species, resembling in most respects the preceding species, *A. insigniventris*, the description of which applies also to this insect excepting in the following particu-

lars. Eyes apparently bare. Antennae darkish brown, the torus darker than the rest: segments 4–10 shorter, in one specimen from 7 by 9 to 10 by 9 units; 11–15 longer, about 26, 29, 29, 31, and 44 (including slender stylet of about 7 units) units respectively. The combined lengths of segments 11–15, 4–10, and 3–10 about 159, 58, and 69 units respectively. Thorax with similar adornment. Scutellum very dark brown, as dark as scutum. Wings similar, but macrotrichia perhaps rather more numerous in cells *R* 5 and *M* 1, and present on distal parts of branches of *M* and *Cu*. Halteres with darker brown knobs. Legs similar: T. R. about 2·7. Abdomen rather darker brown; without ventral armature. Spermatheca single, more highly chitinised, sparsely pitted all over, pyriform, length about 115 μ, and greatest breadth about 85 μ: the duct narrow, not chitinised.

2 ♀♀.

This species is smaller than *A. obfuscatus*, I. & M., a Chilean insect, in which moreover the basal segments of the antennae are more flattened.

Atrichopogon **flumineus,** sp. n.

A very dark brown species, rather larger than any of the preceding species, and with more numerous macrotrichia on the wings.

♀. Length of wing, 1·5–1·6 mm.; greatest breadth of wing, 0·6–0·7 mm.

Head very dark brown. Eyes apparently bare. Palpi very dark brown, third segment slightly inflated about middle, with large pit; lengths of last three segments about 21, 13, and 12 units respectively. Antennae not very dark, torus and segments 3–10 rather yellowish-brown, 11–15 somewhat darker brown: segments 4–10 from sub-spherical to shortly oval, 10 by 10 to 10 by 9 units; 11–15 elongate, from 27 to 32 by about 8 units; 15 about 40 (including stylet of about 5 units) by 7 units. The combined lengths of segments 11–15, 4–10, and 3–10 about 160, 70, and 84 units respectively. *Thorax* very dark brown, with usual scutal adornment which, however, is obscured by the general dark coloration. Scutellum paler brown than scutum, a light coloured substance within showing through the cuticle: bearing 4 bristles, and a few small hairs. *Wings* unadorned; veins pale, yellowish. Macrotrichia numerous at tip, covering most of wing surface distal to level of end of costa. Macrotrichia also present along posterior margin, and on veins, but between *M* 2 and *Cu* 1 hardly extending beyond level of end of costa, and in anal cell quite scanty. Anal lobe large, anal angle almost a right angle. Costa extending nearly four-fifths length of wing. Both radial cells well formed; second nearly three times as long as first. Petiole of *M* shorter than cross-vein. Fork of *Cu* slightly distal to that of *M*. Angle formed by branches of *Cu* much less than a right angle. Halteres with whitish knobs. *Legs* almost uniformly darkish brown, but last segment of all tarsi infuscated. Hind tibiae with one or two exceptionally long, strong bristles. T. R. about 2·6. Form of segments normal. Claws with rather large basal barb. Empodium unusually large. *Abdomen* dark brown. Vulva almost encircled by chitinous thickening, but without especial armature. Spermatheca single, highly chitinised, apparently not pitted, pyriform, total length about 118 μ, and greatest breadth about 75 μ.

1 ♀.

This species resembles in some respects *A. chilensis*, I. & M., but is smaller, and has only a single spermatheca.

Culicoides **amazonius,** sp. n.

A dark brown species, with the wing adornment similar to that of *C. phlebotomus* (Will.), and with the fourth tarsal segments cordiform.

♂, ♀. Length of wing, about 1·2 mm.; greatest breadth of wing, about 0·5 mm.

Head very dark brown. Eyes bare, in female contiguous above. Palpi very dark

brown, rather long, third segment without definite pit, but with sensory hairs arising from a shallow depression a little beyond middle : lengths of last three segments in one female about 23, 9, and 10 units, and in one male about 13, 6, and 9 units respectively. Antennae very dark brown, with basal segments of flagellum rather paler than rest. In male, plume poorly developed : last three segments elongate, their lengths in one specimen about 19, 17, and 24 units respectively; segments 11 and 12 small, sub-spherical; long hairs; and combined lengths of segments 4–12 and 13–15 about 66 and 60 units respectively. In female, segments 4–10 oval, in one specimen from about 10 by 9 to 10 by 7 units; 11–14 elongate, sub-equal, about 15–16 by 6–7 units; 15 longer, about 25 by 6 units, tapering distally, without stylet. The combined lengths of segments 11–15, 4–10, and 3–10 in this specimen about 88, 70, and 83 units respectively. *Thorax* very dark brown. Adornment (if any) not visible in the specimens which were all preserved in spirit. Scutellum very dark brown; bearing 4 (or 3) bristles, and a few (about 8) small hairs. *Wings* rather pale, especially in males. Adornment similar to that of *C. phlebotomus* (Will.) (see Hoffman, 1925*). Macro-

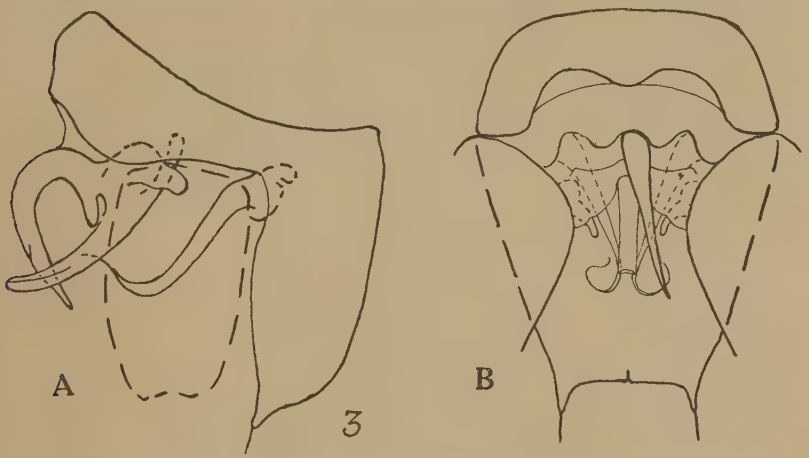


FIG. 3.—*Culicoides amazonius*, sp. n., hypopygium of male : A.—lateral view; B.—ventral view.

trichia not very numerous, limited to the peripheral areas of the distal half of wing. Venation normal. Costa extending less than two-thirds length of wing. Both radial cells well formed. Halteres with white knobs. *Legs* dark brown : knees dark, and paler bands as usual but rather indistinct. Fourth tarsal segment cordiform on all legs. Claws small, normal. T. R. about 2. *Abdomen* dark brown, not so dark as scutum, with posterior margins of tergites narrowly paler. Spermathecae two, highly chitinised, oval, sub-equal, about 50–60 μ by 35–40 μ; the duct chitinised for only a very short distance. Hypopygium (fig. 3) with posterior margin of ninth tergite with median cleft, and bearing a pair of rather short processes. Ninth sternite excavated, rather more deeply at sides than in middle. Harpes not very dark, with twisted, filiform ends. Aedeagus peculiar, with a long, strong process projecting from the middle of its base and curving ventrally and posteriorly to end in a strong point. Membrane joining aedeagus to ninth sternite not spiculate.

12 ♂♂, 82 ♀♀. Some of the females were taken in the act of biting, others appeared to be already engorged with blood.

This species belongs to the group characterised by having the fourth tarsal segments cordiform, but differs from those hitherto described in the adornment of the wings.

* 1925, *Amer. J. Hyg.*, **5** : 285.

Culicoides (?) *diabolicus*, Hoff.

1 ♀.

This specimen resembles in almost every respect *C. diabolicus*, Hoff., or at any rate the specimens from Colombia referred to this species by me in 1932 (*Ann. Mag. nat. Hist.*, (10) **9** : 487). It differs from them, however, in having the dark point covering the anterior part of the cross-vein rather larger, and in having a small dark spot on the wing-membrane immediately under the point where the vein *R* 4 + 5 bends up to join the costa, that is at about the middle of the pale area which covers the greater part of the second radial cell.

Culicoides sp.

1 ♀.

This specimen differs from the preceding specimen in the following characters. Antennae shorter, the lengths of segments 10, 11, and 15 about 10, 13, and 19 units instead of about 13, 18, and 32 units respectively, and basal segments less flask-shaped. Halteres with white knobs. Adornment of wings similar, but the anterior part of the cross-vein is not infuscated, and there is no small dark spot just below the point where *R* 4 + 5 turns up to join the costa.

In the absence of males, which in this genus often show the most definite specific characters, it is impossible to be certain if this specimen, the preceding specimen, and *C. diabolicus* are indeed the same or distinct species.

Culicoides guttatus (Coq.)

2 ♀♀.

Dasyhelea **hippolytae,** sp. n.

A species with the head very dark brown, the thorax brown, the scutellum yellowish, the legs yellowish and without bands, and the abdomen yellowish with very dark brown tergites. The palp is apparently composed of only four segments, and the antenna ends in a stylet.

♀. Length of wing, about 1·2 mm.; greatest breadth of wing, 0·4–0·5 mm.

Head very dark brown. Eyes hairy. Palpi brown, apparently composed of only four segments, the second the longest, not quite so long as the last two together, without pit, but bearing a few sensory hairs at its distal end. Antennae dark brown, segments sculptured, and armed with curved, pointed spines about as long as the segments: segments 4–14 forming an almost continuous series, from 10 by 9–10 to 16 by 8 units, without any very well marked change of shape between segments 10 and 11; the last segment about 25 (including stylet of about 4 units) by 8 units. The middle segments of antennae narrowed anteriorly, but not truly flask-shaped. The combined lengths of segments 11–15, 4–10, and 3–10 about 83, 75, and 85 units respectively. *Thorax* yellowish-brown, with the usual scutal bands which are darker brown. Scutellum yellowish, the colour due to some pale substance showing through the cuticle: bearing a transverse row of 9 bristles, and about 9 small hairs. *Wings* unadorned, but costa and radial vein somewhat infuscated about middle of wing. Macrotrichia not very dense, but extending practically to base between *M* and *Cu*; bare areas present along veins, but not very conspicuous. Anal angle obtuse; anal cell normal, well formed. Costa reaching a little beyond middle of wing. First radial cell obliterated; second also not clearly formed, but costa and radial vein running parallel for a short distance forming what looks like an oblong cell. Fork of *Cu* proximal to level of end of costa. Halteres with white or cream-coloured knobs. *Legs* almost uniformly pale yellowish-brown, but last tarsal segment of all legs infuscated. T. R. about 3. *Abdomen* with very dark brown tergites, but containing a pale-coloured substance which shows through yellowish at sides and between segments. Spermatheca single, well chitinised, sub-spherical, diameter 70–75 μ; the duct curved, length about 30 μ, and breadth in middle of chitinised part about 12 μ.

1 ♀.

This species is perhaps allied to *D. columbiana*, Kieff., a Colombian species which, however, is darker in colour. *D. columbiana* was at first (1917) assigned to *Culicoides* and subsequently (1919) transferred to *Dasyhelea*, but the description is probably insufficient for recognition.

Dasyhelea **penthesileae**, sp. n.

A dark brown species with pale brown legs the knees of which are, however, dark brown: eyes apparently bare, antennae ending in a stylet, and spermathecae two, sub-spherical.

♀. Length of wing, 1·3 mm.; greatest breadth of wing, 0·5 mm.

Head very dark brown. Eyes bare, contiguous above. Palpi rather long and slender, dark brown, but pale at articulations: segment 3 almost cylindrical, without pit, but bearing sensory hairs about middle; lengths of last three segments about 17, 17, and 21 units respectively. Antennae darkish brown, especially at distal ends, the segments not definitely sculptured: segments 4–10 sub-spherical to oval, more or less narrowed distally, measuring from 12 by 11 to 14 by 7 units, armed with long curved spines; 11–14 more elongate, gradually lengthening from 16 to 19 by 7 units; 15 about 24 (including stylet of about 3 units) by 6–7 units. The combined lengths of segments 11–15, 4–10, and 3–10 about 95, 90, and 105 units respectively. *Thorax* dark brown, with traces of usual adornment. Scutellum pale brown, the colour due to some pale substance showing through the cuticle, but darker brown at sides and in middle: bearing a transverse row of 6 bristles, and 6 small hairs. *Wings* unadorned, but costa and radial vein infuscated about middle of anterior border of wing. Macrotrichia not very dense, but extending to base between *M* and *Cu*. Bare areas along veins present, but not very conspicuous. Anal cell well formed, normal. Costa reaching a little beyond middle of wing. First radial cell obliterated, a mere slit; second longer than broad, hardly at all open. Petiole of *M* distinct, as long as cross-vein. Fork of *Cu* at about level of middle of first radial cell. Halteres with pale, brownish knobs and infuscated stems. *Legs* pale brown, with basal segments, knees, and other joints dark brown, and last tarsal segment of all legs infuscated. Femora and tibiae only slightly darker than tarsi; femora of hind legs with indistinct darker patch near distal extremity. T. R. about 1·3. Empodium rudimentary. *Abdomen* with very dark brown tergites, and sides mottled with small dark brown spots. Spermathecae two, well chitinised, pitted sparsely all over, sub-spherical, sub-equal, diameter about 40 μ: duct short and narrow, about 5 μ by 3–4 μ, arising obliquely.

1 ♀.

This species resembles in some respects *D. albopicta*, I. & M., a Chilean species, which, however, is larger and darker, the femora and tibiae being dark brown, and differs also slightly in a number of other characters.

Dasyhelea **thalestris**, sp. n.

A very dark brown species, with a yellowish scutellum, and pale brown legs: eyes apparently bare, antennae with stylet, second radial cell unusually long, and T. R. about 2·5.

♀. Length of wing, about 1·3 mm.; greatest breadth of wing, 0·4–0·5 mm.

Head very dark brown. Eyes apparently bare. Palpi brown, short, lengths of last three segments about 15, 8, and 9 units respectively, the third without pit. Antennae uniformly very dark brown, segments not definitely sculptured: segments 4–10 from oval to almost flask-shaped, measuring from 12 by 10 to 15 by 8 units; 11–14 more elongate, sub-equal, 20–21 by 7 units; 15 about 26 (including stylet of about 4 units) by 7 units. The combined lengths of segments 11–15, 4–10, and 3–10 about 109, 95, and 109 units respectively. *Thorax* very dark brown. Scutellum yellowish, the colour due to some pale substance which shows through the cuticle: bearing a transverse row of 8 bristles, and two or three small hairs. *Wings* unadorned, but anterior veins somewhat infuscated. Macrotrichia not very dense, but extending nearly to base between *M* and *Cu*. Bare areas present

along veins. Anal cell well formed, normal. Costa reaching decidedly beyond middle of wing. First radial cell obliterated; second unusually long, longer than first. Petiole of *M* indistinct, apparently about same length as cross-vein. Fork of *Cu* at about same level as base of second radial cell. Halteres with whitish knobs, and infuscated stems. *Legs* pale brown: femora and tibiae only slightly darker than tarsi. Femora of hind legs with dark patch just beyond middle. Actual knees dark brown, and other joints and terminal segments of tarsi infuscated. T. R. about 2·5. Claws normal. Empodium rudimentary. *Abdomen* with tergites and sternites very dark brown, the former, however, narrowly pale posteriorly, and with two small clear spots about middle. Sides not mottled with dark spots as in the last species. Spermatheca single, highly chitinised, sub-spherical, diameter about 45 μ; the duct chitinised for nearly 15 μ.

1 ♀.

Eukraiohelea **amnigena,** sp. n.

A greenish-yellow species with brown markings (perhaps greener when living, as the specimen had been preserved in spirit), with unadorned wings on which the petiole of *M* is shorter than the cross-vein.

♀. Length of wing, about 2·1 mm.; greatest breadth of wing, about 0·6 mm.

Head darkish brown. Eyes bare, narrowly separated above. Palpi blackish, the segments sub-cylindrical, the third with a very small pit in anterior third: lengths of last three segments about 20, 13, and 22 units respectively. Antennae damaged, only the basal segments of one side left. Torus brown. Basal segments of flagellum yellowish, with infuscated tips, sub-cylindrical, the 9th about 21 by 5 units. *Thorax* greenish-yellow, with darkish brown markings at sides and immediately in front of scutellum. A group of about 5 bristles immediately above root of each wing. Scutellum mainly darkish brown, rather paler in middle posteriorly: bearing 4 bristles, and 2 small hairs. *Wings* unadorned. No macrotrichia, and bristles only on costa. Costa extending about four-fifths length of wing. First radial cell absent, not even represented by a knob. Cross-vein and anterior branch of *R* forming a straight line. Petiole of *M* shorter than cross-vein (about 3 : 5). Fork of *Cu* slightly distal to that of *M*. Halteres with dark brown knobs. *Legs* greenish-yellow, with dark brown markings; the fore legs paler than the others. All knees, and distal extremities of all tibiae dark brown. Tibiae of middle and hind legs with in addition a dark brown zone at base, that on the middle legs less extensive, and separated from the dark knee area by a narrow paler band. First three tarsal segments pale, with joints infuscated; fourth and fifth segments dark brown. Fore femora armed with 3–4 small spines. Hind tibiae with antero-posterior row of strong spine-like bristles. First tarsal segment of hind legs with basal spine. Fourth tarsal segments all cordiform. Fifth tarsal segments armed with black spines, 2 pairs on fore and middle legs, one pair on hind legs. T. R. about 3. Claws all alike, unequal, fused at base, as is usual in *Stilobezzia*. *Abdomen* greenish-yellow. Tergites darkish brown posteriorly, at sides, and in middle, and with a small, clear, round spot on each side about the middle. Hairs scanty, mostly at sides and along posterior border of tergites. Spermathecae 2, highly chitinised, oval, sub-equal, about 78 μ by 55 μ; the duct not at all chitinised.

1 ♀.

This insect resembles in many respects the African species *E. africana*, Ingram & Macfie, but differs from it, and from all the other species described, in having the petiole of *M* shorter than the cross-vein. Johannsen (1931) considers that a sharp line cannot be drawn between *Eukraiohelea* and *Stilobezzia*. It is commonly the case that genera of Ceratopogonids are difficult to separate by any sharp line, and for this reason, and because it is at least convenient for the separation of a compact group of species, the name *Eukraiohelea* is retained here. The South American species described by Lutz (1914) under the name *Palpomyia dorsofasciata* should presumably be referred to this genus.

NEW AMERICAN HISTERIDAE (COL.)

By Howard E. Hinton.

(*Cambridge, England.*)

Saprinus neglectoides, sp. n.

Broadly oval, convex, black without trace of aeneous or bronzy lustre, strongly shining; antennal club, mouth-parts and tibiae dark rufo-piceous. *Head* without impressed lines, moderately coarsely, densely punctate anteriorly, with punctures becoming finer and sparser basally, base finely, sparsely punctate. *Prothorax* more than one-half wider than long, apical marginal line moderately fine, lateral coarse, not quite attaining base; sides arcuate, converging to and strongly rounding at apex; base moderately evenly arcuate, not margined; disk finely, sparsely punctate, with the punctures becoming moderately coarse and dense at sides especially anteriorly and with the extreme sides between coarsely punctate area and lateral margin finely, moderately sparsely punctate; surface at base with a few coarse, irregularly scattered punctures and with a wide, scarcely noticeable anti-scutellar depression. *Elytra* two-thirds longer than prothorax, microscopically, sparsely punctate on basal one-half at middle and basal two-thirds at sides, extreme sides nearly impunctate to apex; apically with a well-defined area of coarse, moderately dense, more or less evenly spaced punctures; striae coarsely, crenately, closely punctate, sutural striae extending to apical one-fifth, parallel to suture and at base joined in a broad arch to second which extends to apical one-third, second to fifth each extending slightly nearer apex than the preceding; humeri with a very short, impressed line at base, outer humeral complete; scutellum equilateral. *Propygidium* less than one-third as long as pygidium, coarsely, densely punctate; pygidium coarsely, densely punctate, slightly more finely punctate at extreme apex. *Prosternum* wide between striae, strongly convex, striae widely diverging anteriorly and contingent with the very strongly sinuate carinae above antennal cavities and both ending anteriorly in a broad, deep pit. Mesosternum elevated above metasternum and limited posteriorly by a straight line; broadly, shallowly, arcuately emarginate in front; marginal stria following contour of emargination; coarsely and finely, moderately densely punctate; metasternum microscopically, sparsely punctate except caudally where there is a transverse area of coarse, moderately dense punctures; first ventral segment moderately finely, densely punctate basally and at sides, elsewhere extremely finely, sparsely punctate except near apex where there is a transverse row of fine, closely placed punctures. Length, 2·9 mm.; breadth, 2 mm.

Type in the author's collection. Mexico: Real de Arriba, Dist. de Temascaltepec, alt. 6,000 ft., July, 1933 (*H. E. Hinton, R. L. Usinger*).

This species is closely related to *Saprinus blandus*, Erichs., *S. tarnieri*, Mars., and *S. neglectus*, Mars. From the first it may be separated by the absence of the bronzy lustre and the impressed lines at the apex of the pygidium; and from the second, the new species differs in its less widely divergent prosternal striae, narrower and more convex prosternum, and much more coarsely punctate pygidium. From the third, *S. neglectoides*, Hntn., differs in having no distinct area of coarser punctures at the extreme pronotal base; the pygidium is not so elongate, but is more transverse and much more coarsely punctate; and the prosternum is narrower, more convex, and much more finely punctate.

Epierus foveolatus, sp. n.

Oblong oval, convex, black, shining; antennal club somewhat testaceous, antennae, mouth-parts and legs dark rufo-piceous. *Head* with a very finely impressed line extending completely across front, microscopically, moderately densely punctate. *Prothorax* more than one-third wider than long, apical marginal line fine, lateral moderately fine; sides

arcuate, converging moderately strongly to apex; base evenly arcuate; disk only extremely finely, moderately densely punctate; near sides distinctly more coarsely, sparsely punctate; extreme base with no distinct belt of coarser punctures but with an occasional coarser puncture. *Elytra* twice as long as prothorax, apparently impunctate but sparsely, microscopically punctate; striae feebly, indistinctly punctate, very finely impressed, all extending from base to near apex, with the sutural and second scarcely visible at base; humeral stria (seventh) absent, outer humeral complete; scutellum small, equilateral. *Propygidium* one-half as long as pygidium, moderately coarsely and densely punctate; pygidium finely, moderately densely punctate, nearly impunctate at apex. *Prosternum* moderately wide and feebly convex between striae, striae slightly converging, thence parallel to lobe; carinae in front of anterior coxae fine, diagonal, scarcely sinuate, attaining lobe. Mesosternum not elevated, very shallowly, broadly, arcuately emarginate in front; meso-metasternal suture scarcely visible; marginal stria complete, feebly sinuate in front, surface apparently impunctate; metasternum and first ventral segment also apparently impunctate, the former with a deep, broad, longitudinal fovea extending from mesosternum to caudal one-fifth of metasternum. Length, 3·1 mm.; breadth, 1·8 mm.

Type in the author's collection. Mexico: Real de Arriba, Dist. de Temascaltepec, alt. 6,000 ft., July, 1933 (*H. E. Hinton, R. L. Usinger*).

This is the only species of *Epierus* known to me that has a deep, longitudinal fovea on the metasternum. It is closely related to *E. lucidulus*, Erichs., *E. vagans*, Mars., and *E. lucens*, Mars. From the first two, *E. foveolatus*, Hntn., may be readily separated by its prosternal striae being parallel anteriorly instead of widely divergent, its deeply foveate metasternum, and apparently impunctate instead of finely, densely punctate meso-metasternum. *E. lucens*, Mars., has no deep fovea on the metasternum, the mesosternal marginal stria in front is strongly arcuate instead of feebly sinuate, and the elytral striae are much more heavily impressed.

Phelister **impunctipennis,** sp. n.

Broadly oval, convex, rufo-piceous, shining; antennae, mouth-parts and legs paler. *Head* with frontal stria well impressed, at sides joining supra-orbital striae which are deep and distinct; front feebly concave, microscopically, moderately densely punctate. *Prothorax* about twice as long as wide; apical and lateral marginal line fine, lateral sinuate on apical one-fourth; apical stria present only on middle one-half of prothorax and curved posteriorly for a very short distance at each end, lateral stria present only on apical one-half, broadly curved anteriorly and extending across prothorax near apex to nearly join apical stria; sides arcuate, converging moderately to apex; base evenly arcuate; surface apparently impunctate but near sides with a few fine, very shallow, hardly noticeable punctures. *Elytra* twice as long as prothorax, apparently impunctate; striae moderate, outer ones impunctate, inner feebly, crenately punctate; sutural extending from near apex to apical one-third, second absent, third extending from near base to near apex, fourth present in basal one-third and also for a very short distance in apical one-fourth, fifth and sixth extending from near base to near apex; humeral absent, outer humeral complete; scutellum equilateral. *Propygidium* as long as pygidium, moderately sparsely, coarsely punctate and with extremely fine punctures sparsely intermixed subbasally, base and apex nearly impunctate; pygidium with a very fine, short marginal stria at apex, only microscopically punctate. *Prosternum* narrow, feebly convex between striae; striae widely diverging caudally, nearly parallel and approximate anteriorly, joined in a narrow arch, not quite attaining lobe; carinae in front of anterior coxae feebly diagonal, sinuate, not attaining lobe. Mesosternum with a very narrow anterior portion elevated and limited posteriorly by a broadly arcuate line, truncate in front; marginal stria in front

present only at sides, surface impunctate; metasternum and first ventral segment impunctate, the latter with the longitudinal stria on each side short, curved, not attaining apex. Length, 2 mm.; breadth, 1·5 mm.

Type in the collection of the British Museum. MEXICO: Teapa, Tabasco, Feb., 1903 (*H. H. Smith*).

In Bickhardt's table to the species (1917, *Gen. Insect.*, **166***b*) this traces to *P. brevistrius*, Mars., of Brazil, but the latter has no apical pronotal stria. *P. brevis*, Bickhardt, also has no apical pronotal stria. *P. impunctipennis*, Hntn., traces to "3" in Casey's key to the North American species (1916, *Mem. Coleopt.*, **7** : 229), but fits neither alternative, as it has only three entire dorsal striae.

Phelister **rubidus,** sp. n.

Oblong oval, convex, pale rufo-piceous, shining; apical and lateral margins of pronotum, basal margin and sutural area of elytra darker, ventral side also darker. *Head* without frontal stria, supra-orbital striae finely impressed and feebly curved inwardly anteriorly, deep and distinct basally; front very feebly concave, surface very finely, moderately densely punctate, punctures sparser basally. *Prothorax* one-third wider than long, apical and lateral marginal line extremely fine; apical stria present on middle one-half of pronotum, each end extended posteriorly for a very short distance, lateral very fine basally, anteriorly slightly more coarsely impressed and extending across front to nearly join apical stria; sides feebly arcuate, moderately converging to front; base evenly arcuate; surface extremely finely, moderately sparsely punctate, with an area of coarser, moderately dense punctures near sides; between area of coarser punctures and lateral margin punctate as on disk; surface at base in front of scutellum with the usual subovate impression. *Elytra* twice as long as prothorax, microscopically, sparsely punctate throughout; striae moderate, outer striae nearly impunctate, inner especially second and sutural crenately, moderately closely punctate; sutural extending to basal one-third and feebly diverging from suture towards base, second nearly as long as sutural, third to sixth extending from near base to near apex; humeral absent, outer humeral nearly complete; scutellum equilateral. *Propygidium* nearly as long as pygidium, moderately coarsely, moderately densely punctate, with extremely fine punctures moderately densely intermixed; pygidium finely, moderately densely punctate, with extremely fine punctures densely intermixed. *Prosternum* between striae moderately wide, nearly flat; striae diverging caudally, anteriorly parallel for only a short distance and joined in a narrow arch, not attaining lobe; carinae in front of anterior coxae feebly diagonal, strongly sinuate, not attaining lobe. Anterior portion of mesosternum elevated above metasternum and limited posteriorly by a strongly, narrowly arcuate line, truncate in front; marginal stria straight and complete in front, surface microscopically, sparsely punctate; metasternum and first ventral segment microscopically and sparsely punctate. Length, 1·8 mm.; breadth, 1·1 mm.

Type in the collection of the British Museum. MEXICO (*Godman*).

This species traces to *Phelister teapensis*, Mars., in Bickhardt's key to the species (1917, *Gen. Insect.*, **166***b*), but differs in having the supra-orbital striae separated in front. *P. rubidus*, Hntn., traces to "3" in Casey's key to the species (1916, *Mem. Coleopt.*, **72** : 29), but fits none of these, as it has a complete outer humeral stria.

Phelister **pusillus,** sp. n.

Very small, oval, convex, dark piceous, nearly black, strongly shining; antennae, mouth-parts and legs rufo-piceous. *Head* with well-impressed frontal stria not joined at sides to deep and distinct supra-orbital striae; front slightly concave, finely, sparsely punctate. *Prothorax* one-third wider than long, apical and lateral marginal line fine,

apical slightly separated from apex; apical stria absent, lateral complete, curved near apex and extending one-fourth the distance across front; surface finely, sparsely punctate, with a few coarse punctures near sides and an oblong oval impression in front of scutellum. *Elytra* twice as long as prothorax, extremely finely and sparsely punctate throughout; striae well impressed, outer striae feebly punctate, inner more distinctly, crenately punctate; sutural extending to basal one-third, diverging slightly from suture towards base, slightly coarser basally, second present only on apical one-third, third to sixth extending from near apex to near base and suddenly widened for a very short distance at base; near base on each side of scutellum opposite sutural striae is a small, semi-circular impression; humeral absent, outer humeral present on apical one-half. *Propygidium* nearly as long as pygidium, moderately coarsely, sparsely punctate, with very fine punctures sparsely intermixed; pygidium less coarsely, more densely punctate and with very fine punctures sparsely intermixed. *Prosternum* feebly convex between striae; striae converging anteriorly and joining in a narrow arch, nearly attaining lobe; carinae in front of anterior coxal cavities slightly diagonal, sinuate, attaining lobe. Mesosternum elevated and limited posteriorly by a broadly arcuate line, truncate in front; marginal stria straight in front; very finely, sparsely punctate; metasternum and first ventral segment very finely, sparsely punctate, highly polished. Length, 1·6 mm.; breadth, 1·1 mm.

Type in the author's collection. Mexico: Cuernavaca, Estado de Morelos, June, 1934 (*H. E. Hinton*).

In Bickhardt's key to the species of *Phelister* (1917, *Gen. Insect.*, **166***b*) this traces to *P. erraticus*, Mars., from Chili, but in the latter the frontal stria is absent. *P. pusillus*, Hntn., traces to *P. geometricus*, Csy., from Texas in Casey's key to the North American species (1916, *Mem. Coleopt.*, **7** : 232), but may be separated from it by a very well-developed fovea in front of the scutellum and by having the marginal stria of the mesosternum complete in front.

Phelister **subgibbosus,** sp. n.

Broadly oval, convex, elytral disk strongly convex, dark rufo-piceous, shining; antennae, mouth-parts and legs paler. *Head* with a deep frontal stria sharply but feebly sinuate at middle, joined at sides to supra-orbital striae which are likewise deep and distinct; front slightly concave, surface finely, densely punctate, more sparsely punctate basally. *Prothorax* one-third wider than long; apical marginal line moderate, lateral fine, sinuate in apical one-fourth; apical and lateral striae absent; sides arcuate, converging moderately to apex; base evenly arcuate; disk extremely finely, moderately sparsely punctate, with coarse, dense and fine, moderately dense punctures intermixed at sides; extreme base with only a few coarse punctures near middle and a subovate impression in front of scutellum. *Elytra* twice as long as prothorax, apparently impunctate; striae moderate, feebly but distinctly, crenately punctate; sutural extending and slightly diverging from suture to basal one-half, second represented only by an extremely short line near apex, three to six complete, third not extending quite so near base, all suddenly broadened for a very short distance near base; opposite end of sutural striae on each side of scutellum is a small, semi-circular impression; humeral stria absent, outer humeral present on apical one-half; scutellum wider than long. *Propygidium* slightly longer than pygidium, coarsely, densely punctate, with very fine punctures sparsely intermixed, extreme apex more sparsely punctate; pygidium moderately coarsely, moderately densely punctate, with finer punctures sparsely intermixed, more finely punctate at apex. *Prosternum* narrow, nearly flat, very finely punctate, striae diverging caudally, nearly parallel anteriorly, attaining lobe; carinae in front of anterior coxae diagonal, sinuate, transgressing on lobe; lobe coarsely and sparsely punctate. Mesosternum elevated and limited posteriorly by a broadly arcuate line, truncate in front, marginal stria complete, feebly arcuate in front; surface microscopically, moderately sparsely punctate; metasternum

and first ventral segment microscopically, moderately densely punctate, with the former shallowly concave at middle. Length, 2·7 mm.; breadth, 1·8 mm.

Type, a ♂, in the author's collection. MEXICO: Real de Arriba, Dist. de Temascaltepec, alt. 6,000 ft., July, 1933 (*H. E. Hinton, R. L. Usinger*).

The feebly concave middle of the metasternum is probably only a sexual character. In Bickhardt's key to the American species, this species traces to *Phelister omissus*, Schmidt, from Paraguay, but the latter is black instead of rufo-piceous, sub-depressed instead of strongly convex, the striae are much coarser, and the propygidium is less coarsely and densely punctate. In Casey's key to the species, it traces to "7," but agrees with none of the species here.

Phelister **interruptus,** sp. n.

Broadly oval, convex, dark piceous, nearly black, shining; antennae, mouth-parts and legs slightly paler. *Head* with supra-orbital striae deep, distinct, curving inwardly anteriorly but moderately widely interrupted in front; front moderately concave, finely, densely punctate. *Prothorax* one-third wider than long; apical marginal line coarse on middle one-half, fine at sides, lateral fine; apical stria absent, lateral complete, curved anteriorly and extending one-fourth of distance across front; sides feebly arcuate, converging moderately to front; base evenly arcuate; surface finely, evenly, moderately densely punctate, with the punctures becoming very slightly coarser at sides; base with only an occasional coarser puncture and a rather large, oval impression in front of scutellum. *Elytra* less than twice as long as prothorax, finely, moderately densely punctate throughout; striae rather coarse, well impressed, crenately, moderately closely punctate on disk; sutural diverging slightly from suture and extending to basal one-half, second present on slightly over apical one-third, third complete, curving strongly inwardly at base, fourth to sixth complete, widened slightly at base; humeral absent, outer humeral extending to basal one-fourth; scutellum equilateral. *Propygidium* as long as pygidium moderately coarsely, sparsely, and finely, densely punctate, with the coarser punctures more numerous basally; pygidium finely, evenly densely punctate. *Prosternum* emarginate at base, moderately wide, feebly convex, finely, densely punctate; striae moderately diverging caudally, nearly parallel anteriorly but very feebly divergent at apex, not joined, not quite attaining lobe; carinae above anterior coxae fine, diagonal, nearly straight, not attaining lobe. Mesosternum elevated, posterior limiting line shallowly arcuate at middle, feebly bisinuate in front; marginal stria complete in front, feebly sinuate; surface finely, densely punctate; metasternum and first ventral segment finely, moderately sparsely punctate. Length, 2·5 mm.; breadth, 1·8 mm.

Type deposited in the collection of the British Museum. PANAMA: Volcan de Chiriqui (*Champion*).

Specimens of this species in the "Biologia" collection determined as *Phelister brevis*, Bickhardt, by Lewis, are responsible for *P. brevis*, Bickhardt, having been recorded from Panama. *P. interruptus*, Hntn., traces in Bickhardt's key to the American species to *P. columbiae*, Lewis, to which it is very similar. In *P. columbiae*, Lewis, the outer humeral is very short and present only on apical one-third, whereas in the new species it is present on apical two-thirds. *P. interruptus*, Hntn., has the prothorax and elytra black; and *P. columbiae*, Lewis, has the elytra a bright reddish colour and the prothorax black. In Casey's key to the North American species it traces to "7," but agrees with none of the species here.

Phelister **blairi,** sp. n.

Oblong oval, convex, pale rufo-piceous, shining; antennal club somewhat testaceous. *Head* with the frontal stria very fine and joined at sides to supra-orbital striae which are

moderately coarse; front strongly concave, with the anterior margins of the concavity sharply defined, surface very finely, moderately densely punctate, with a few slightly coarser punctures intermixed. *Prothorax* one-third wider than long; apical marginal line absent on middle one-half, fine at sides, lateral fine, sinuate on apical one-fourth; apical stria present on middle one-half, with the ends curved and extending posteriorly and outwards for a short distance, lateral striae very short, present only on apical one-fourth, curved and extending a very short distance across apex; sides feebly arcuate, converging moderately strongly to apex; base evenly arcuate; surface extremely finely, moderately densely punctate throughout; near sides with a rather broad area of numerous, slightly coarse, moderately dense punctures; base without coarser punctures and with a very large, round impression in front of scutellum. *Elytra* one-half longer than prothorax microscopically punctate basally, apically extremely finely, moderately sparsely punctate; striae moderate, outer striae feebly, crenately punctate, inner striae more closely, distinctly punctate; sutural diverging from suture near apex, thence nearly parallel and extending slightly beyond basal one-half, second extending to basal one-half, third complete, near base curved towards scutellum, fourth to sixth complete; humeral absent, outer humeral present only on apical one-third; scutellum equilateral. *Propygidium* as long as pygidium, moderately coarsely, densely, and microscopically punctate, with coarser punctures absent near extreme apex; pygidium finely, moderately densely, and microscopically punctate. *Prosternum* feebly emarginate at base, moderately wide and microscopically punctate between striae, from point of end of striae to lobe more strongly convex; striae diverging caudally, converging and joined in a narrow arch anteriorly, ending well before lobe; carinae in front of anterior coxae diagonal, feebly sinuate, not quite attaining lobe. Elevated portion of mesosternum limited posteriorly by a deeply, moderately narrowly arcuate, crenate line; bisinuate in front; marginal stria complete and feebly sinuate in front; surface microscopically, sparsely punctate; metasternum and middle of first ventral segment microscopically, sparsely punctate except at base of the latter where there is a row of slightly coarse, shallow punctures. Length, 2 mm.; breadth, 1·1 mm.

Type in the collection of the British Museum. Brazil: Para, June (*H. H. Smith*).

It traces to *Phelister brevis*, Bickhardt, from Columbia in Bickhardt's key (1917), but is quite different, being much smaller, paler, and having the prosternal striae joined in a narrow arch anteriorly and terminated well before lobe instead of widely separated anteriorly and nearly attaining lobe. From *P. finitimus*, Bickhardt, it differs in being one-third smaller, pale rufo-piceous instead of nigro-piceous, and in having the propygidium densely instead of sparsely punctate.

Phelister **carinullus,** sp. n.

Oblong oval, convex, dark rufo-piceous, shining; antennal club somewhat testaceous, antennae, mouth-parts and legs slightly paler rufo-piceous. *Head* with the ends of the frontal stria turning at an obtuse angle and extending posteriorly for a short distance, not joined to supra-orbital striae which are deep, distinct and not at all curved inwardly; front broadly concave, very finely, moderately sparsely punctate. *Prothorax* one-third wider than long; apical marginal line moderate on middle two-thirds, fine at sides, lateral fine; apical stria absent, lateral widely interrupted on basal one-half, with the short basal continuation only extending to basal one-tenth, anteriorly curved for only a short distance across apex; apical margin distinctly bisinuate; sides feebly arcuate, converging moderately to apex; base evenly arcuate; surface apparently impunctate but near sides with an elongate area of about twenty, slightly coarse, moderately dense punctures; base with a small, round impression in front of scutellum, without coarser punctures. *Elytra* two-fifths longer than prothorax, apparently impunctate, striae moderate, outer striae apparently im-

punctate, inner feebly, crenately punctate; sutural diverging from suture and extending to basal one-half, second present only on apical one-fifth, third present only on apical one-third, fourth to sixth complete; humeral absent, outer humeral short, not extending to basal one-half; scutellum equilateral. *Propygidium* nearly as long as pygidium, slightly coarsely, moderately densely, and microscopically, moderately sparsely punctate, with the coarser punctures much less numerous apically; pygidium finely, moderately sparsely, and microscopically, sparsely punctate, with the coarser punctures absent apically. *Prosternum* feebly emarginate at base, feebly convex, slightly widened at middle, microscopically punctate; striae absent; carina in front of anterior coxa present only as a small, elongate tubercle. Mesosternum with the elevated portion limited posteriorly by a broadly, feebly arcuate, crenate line; feebly bisinuate in front; nearly truncate; marginal stria present only at sides in front; surface microscopically, sparsely punctate; metasternum and middle of first ventral segment microscopically, sparsely punctate. Length, 3·2 mm.; breadth, 2 mm.

Type, a ♀, in the collection of the British Museum. Brazil: Chapada.

In Bickhardt's key (1917) this traces to *Phelister desbordesi*, Bickhardt, from French Guiana, but it may be separated by having the marginal stria of the mesosternum present only at the sides instead of complete in front, and by having the lateral pronotal striae widely interrupted. *P. carinullus*, Hntn., is rather close to *P. daugar*, Mars., but in the latter the propygidium is much more coarsely and densely punctate, and the marginal stria of the mesosternum is complete in front.

Phelister **bistriatus**, sp. n.

Broadly oval, convex, rufo-piceous, shining; antennae, mouth-parts and legs paler. *Head* with the frontal stria joined at sides to supra-orbital striae which are rather wide and deep; front strongly concave, with the anterior margins of the concavity appearing as raised lines, surface microscopically, sparsely punctate. *Prothorax* one-third wider than long; apical marginal line moderate and slightly separated from apex on middle three-fourths, fine at sides, lateral fine; apical stria absent, lateral hardly attaining basal two-thirds, near apex curved across front for a very short distance; apical margin moderately bisinuate; sides feebly arcuate, converging moderately to front; base evenly arcuate; surface apparently impunctate but with a small area near sides at middle coarsely, moderately densely punctate with about fourteen elongate punctures; base with a large, round impression in front of scutellum, without coarser punctures. *Elytra* one-half longer than prothorax, apparently impunctate; striae moderately fine, finely, sparsely, distinctly crenately punctate; sutural extending to basal one-third, nearly parallel to suture except at apex, second and third equal, present only on apical one-fifth, fourth present on apical one-fourth and basal one-third, fifth and sixth complete; humeral absent, outer humeral present on only apical one-third; scutellum equilateral, moderately large. *Propygidium* nearly as long as pygidium, coarsely, densely, and microscopically, sparsely punctate; pygidium finely, sparsely, and microscopically, moderately densely punctate. *Prosternum* feebly emarginate at base, feebly convex on top, microscopically, sparsely punctate; striae absent; carinae above anterior coxae diagonal, strongly sinuate, nearly attaining lobe. Elevated portion of mesosternum limited posteriorly by a very broadly, feebly arcuate, crenate line; bisinuate in front; marginal stria complete and feebly bisinuate in front; surface sparsely, microscopically punctate; metasternum and middle of first ventral segment microscopically, very sparsely punctate. Length, 2 mm.; breadth, 1·4 mm.

Type in the collection of the British Museum. Brazil: Santarem (*H. H. Smith*).

With the exception of *Phelister daugar*, Mars., this is the only American species of the genus having only two complete dorsal elytral striae. *P. bistriatus*,

Hntn., is one-third as large as *P. daugar*, Mars., the front of the prothorax is much more strongly bisinuate, and there is no basal area of coarse punctures on the pygidium.

Phelister **tristriatus,** sp. n.

Oblong oval, convex, dark rufo-piceous, shining; antennae, mouth-parts and legs slightly paler. *Head* with supra-orbital striae moderately impressed, anteriorly curving across front and very narrowly separated at middle; front feebly concave, very finely, moderately sparsely punctate. *Prothorax* one-fourth wider than long; apical marginal line coarse and separated from margin on middle one-half, at sides fine, lateral fine; apical stria absent, lateral extending only to basal one-half, curved anteriorly and extending a short distance across apex; sides feebly arcuate, converging slightly to apex; base evenly arcuate; surface microscopically, moderately sparsely punctate on disk, with the punctures becoming more apparent and slightly denser at sides; near sides with an area of elongate, moderately fine, moderately dense punctures; base with an oblong impression in front of scutellum, without coarser punctures. *Elytra* one-third longer than prothorax, microscopically, moderately sparsely punctate throughout; striae moderate, outer striae slightly coarser than inner and all feebly punctate; sutural diverging from suture and extending to basal one-fourth, second extending to basal one-half, third extending slightly beyond basal one-half, fourth to sixth complete, base with a small round impression opposite end of second stria and one opposite end of third; humeral absent, outer humeral present only on apical one-half; scutellum equilateral. *Propygidium* as long as pygidium, coarsely, moderately densely, and microscopically, moderately sparsely punctate, with the coarser punctures more numerous basally; pygidium finely, sparsely, and microscopically, moderately sparsely punctate. *Prosternum* narrow, especially anteriorly, convex and microscopically punctate between striae; striae widely diverging caudally but not attaining base of prosternum, very approximate, nearly parallel at middle, feebly diverging and joining in a narrow arch anteriorly, not attaining lobe; carinae above anterior coxae diagonal, sinuate, not attaining lobe. Elevated portion of mesosternum limited posteriorly by a very broadly, feebly arcuate line; bisinuate in front; marginal stria complete and nearly straight in front; surface microscopically, moderately sparsely punctate; metasternum and first ventral segment microscopically, evenly sparsely punctate. Length, 2·1 mm.; breadth, 1·4 mm.

Type in the collection of the British Museum. Mexico (*Godman*).

This species is most closely related to *Phelister brevistrius*, Mars., of Brazil, to which it traces in Bickhardt's key (1917). However, *P. brevistrius*, Mars., is twice as large, and has the traces of a frontal stria unconnected to supra-orbital striae at sides. In Casey's key (1916), it traces to "3," but fits neither alternative, as it has only three complete dorsal striae. *P. tristriatus*, Hntn., is rather similar to *P. impunctipennis*, Hntn., but lacks the apical prothoracic stria of the latter.

Phelister **puncticollis,** sp. n.

Oblong oval, convex, dark piceous, shining; head, prothorax, pygidia and ventral side black, antennae, mouth-parts and legs rufo-piceous. *Head* with supra-orbital striae moderate, curved for only a very short distance on front; front feebly, broadly concave, finely, moderately densely, and microscopically, sparsely punctate. *Prothorax* one-third wider than long; apical marginal line moderate, lateral fine, feebly sinuate on apical one-fourth; apical stria absent, lateral complete, curved anteriorly for a short distance across apex; sides nearly straight, converging moderately strongly to apex; base evenly arcuate; surface microscopically, sparsely, and slightly coarsely, moderately densely punctate throughout, with the coarse punctures less numerous on disk and extreme sides; base with a row of coarse punctures and a moderately large, round impression in front of scutel-

lum. *Elytra* two-thirds longer than prothorax, microscopically, moderately sparsely punctate throughout; striae moderately coarse, inner striae closely, crenately punctate, outer striae more feebly punctate; sutural feebly diverging from suture and extending to basal one-third, second to sixth complete, all suddenly broadened for a short distance near base and second curved for a very short distance towards scutellum; humeral absent, outer humeral complete; scutellum longer than wide. *Propygidium* slightly longer than pygidium, slightly coarsely, densely, and microscopically, sparsely punctate; pygidium extremely finely, moderately densely punctate. *Prosternum* feebly emarginate at base, feebly convex and microscopically, sparsely punctate between striae; striae strongly, closely crenate, diverging caudally, converging anteriorly and ending well before lobe; carinae in front of anterior coxae fine, diagonal, nearly straight, not attaining lobe. Elevated portion of mesosternum limited posteriorly by a broadly, strongly arcuate, crenate line; bisinuate in front; marginal stria complete and feebly arcuate in front, on each side anterior to marginal stria there is a short, curved stria; surface very finely, densely punctate; metasternum and middle of first ventral segment very finely, moderately densely punctate throughout, the former with a large area of coarse, dense punctures caudally at sides. Length, 2 mm.; breadth, 1·2 mm.

Type in the collection of the British Museum. Brazil: Monte Alegre, Goyaz (*H. H. Smith*).

In Bickhardt's key (1917) this traces to *Phelister interrogans*, Mars., but may be immediately separated by having five instead of four complete, dorsal, elytral striae.

THE NORTH AMERICAN SPECIES OF THE DIPTEROUS GENUS *MICROSANIA*, ZETT.

By John R. Malloch.

This genus has been variously placed by the older writers, usually in the Empididae, but it is now accepted as properly belonging to the Platypezidae. In a recent paper Dr. A. Collart has demonstrated the specific distinctions of the European forms, but the exact status of those occurring in North America was not determined for lack of specimens of the males.* With this paper in hand I have made a careful comparison of North American specimens with the data therein presented and have arrived at the conclusion that neither of the two species now before me is identical with any from Europe. Below I present some notes on these species and give figures of the hypopygia of the males.

Microsania imperfecta (Loew).

Originally described as *Platycnema imperfecta* in 1865, with the type locality Washington, D.C. The species occurred in considerable numbers on the lighted windows of a store in the centre of the city June 30, 1922, but I was unable to detect the source from which they came. Melander placed *imperfecta* as a synonym of *stigmaticalis*, Zetterstedt, in his paper on the genus in 1922.† Accepting Collart's identification as correct, a glance at the hypopygium figured by that writer will at once disclose differences that do not justify the conclusion that his figure and mine (fig. 1) could have been made from the same species. In fact, there are more points of resemblance between my figure and those of the hypopygia of the other two European species than exist between the former and *stigmaticalis*.

I have compared the hypopygia of males from Florida, District of Columbia, and Churchill, Manitoba, and can detect no differences that would indicate

* *Bull. Mus. Hist. nat. Belg.*, **9** (40) : 1, 1933. † *Psyche*, **29** : 43.

specific distinctions. The thoracic hairs and bristles are usually yellowish, but sometimes the bristles on the mesonotum are almost as dark as in the next species. The costa of the wing has the setulae more distinct along the stigmal region than proximad of it.

It is entirely probable that most of the records of the occurrence of *stigmaticalis* given by Melander, and covering most of the States in the northern half of the United States, refer to this species, but although the species occurs in Florida I am not so certain that the Panama record may apply to this species.

Microsania **occidentalis,** sp. n.

♂. Similar in general features to *imperfecta*, differing in having the bristles of the thorax fuscous to black, the costa of the wing more noticeably setulose proximad of the stigma, the bristles on the dorsal surface of the hind tibiae much longer than the tibial diameter, and the hypopygium as fig. 2. Length, 2·5 mm.

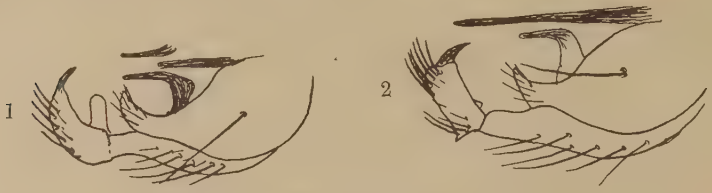


Fig. 1.—Hypopygium of ♂ of *Microsania imperfecta*, one side, ventral view; fig. 2, the same of *M. occidentalis*.

Holotype, Potlach, Ida., 9.ix.1912, on sawmill window (*J. M. Aldrich*). In collection of the United States National Museum.

This is no doubt the species that generally passes for *pectinipennis* in this country, but there is no short spine at the apex of the ventral surface of the hind tibia as in that species, and the hypopygium is quite different from that figured by Collart for the European species.

I am depositing a male of *imperfecta* taken by me in the collection of the British Museum. It is interesting to note the occurrence of this species at Churchill, Manitoba, on the shore of Hudson Bay, June 10, 1930, the specimens having been captured by Mr. Owen Bryant.

NOTES SUR LE GENRE *PSEUDOCHELONARIUM*, PIC (COL. DRYOPIDAE)

Par A. Méquignon.

Le genre *Pseudochelonarium*, Pic, 1916 (génotype *P. hirsutum*, Pic, de Sumatra) diffère du genre *Chelonarium*, F., principalement par la forme du pronotum se repliant en dessous, sur les côtés au moins, sans former de rebord ou carène saillante, et par le dessus du corps hérissé de soies dressées, longues, plus ou moins denses, et dont la couleur uniforme ou non semble avoir un caractère spécifique. Il n'a encore été rencontré que dans les péninsules indienne et indochinoise, les îles malaises et jusqu'à Formose, les Célèbes, les Molluques et la Nouvelle-Guinée, dans la zone des pluies tropicales.

Le genre se divise naturellement en deux sous-genres : le premier (*Pseudochelonarium* s. str.) dont il sera seulement parlé ici, comprend les espèces allongées, à élytres au moins deux fois aussi longs que larges ensemble, et à

pronotum plus large en avant, avec le bord antérieur plus ou moins fortement bisinué (surtout chez la ♀) et plus ou moins longuement caréné; le second (**Neochelonarium,** subgen. n., type : *P. orientale*, Reitt.) comprend les espèces courtes, de forme subarrondie, dont le pronotum à bord arrondi est très atténué en avant et ne présente aucune trace de carène entre sa partie dorsale et sa partie réfléchie très réduite et même nulle en avant.

Subgen. *Pseudochelonarium* s. str.

Tableau des espèces avec diagnoses provisoires des espèces nouvelles.

1. Dessus couvert de longs poils clairs couchés, cachant les téguments sauf sur la partie dorsale, non mêlés de macules ou de poils blancs . . . 3.
— Dessus sans longs poils clairs couchés, mais avec des poils blancs ou blanchâtres courts, épais, condensés ou non en macules; soies dressées plus ou moins nombreuses et visibles . . . . . 2.
2. Macules blanches rapprochées vers le tiers ou le quart postérieur et formant une bande transverse plus ou moins régulière et homogène . . . . 6.
— Macules blanches restant isolées même en arrière . . . . . 12.
3. Partie dénudée des élytres formant une bande transverse s'étendant presque jusqu'à leur bord externe. Long. : 5–6·5 mill.—Sumatra : île Nias . . . . . *unifasciatum*, Reitt.[1]
— Partie dépourvue de longs poils couchés et clairs formant une tache subarrondie au sommet de la convexité dorsale . . . . . 4.
4. Corps noir. Poils couchés d'un jaune orangé; disque offrant une tache très nette, les soies dressées, claires ailleurs, étant nettement noires sur cette partie dénudée. Long. : 5–6 mill.—Malacca : Pérak; île Banguey; Bornéo; 6 ind. (coll. A. Grouvelle et R. Oberthür) **discomaculatum,** sp. n.
— Poils couchés d'un jaune grisâtre; soies dressées du disque dénudé plus sombres qu'ailleurs, mais non pas noires . . . . . 5.
5. Dessus rouge brun, à peine plus foncé sur le disque; pubescence couchée plus dense. Long. : 6 mill.—Java.—*villosum*, MacLeay . (*dorsale*, Reitt.).[2]
— Dessus brun de poix, noir sur le disque; pubescence dressée plus foncée, moins dense sur le pronotum et les élytres. Long. : 5–6 mill.—Bornéo : Kina Balu, Brunei, Sandakan (coll. A. Grouvelle et British Museum) . . . . . **nigratum,** sp. n.
6. Noir en dessus. Pronotum portant vers le milieu de sa longueur une fascie transverse de poils blancs, occupant toute la largeur. Elytres couverts en majeure partie de poils blancs ou blanchâtres serrés, la base, le disque et l'apex seuls dénudés . . . . . 7.
— Pronotum ayant au plus une mouchetture blanche vers la base de chaque côté du disque ou des poils épars sur toute la surface . . . . . 8.
7. Soies dressées moins visibles, de la couleur foncière, noires ou blanches; pilosité blanchâtre très serrée, plus couchée, surtout aux élytres. Base du pronotum sans points la crénelant visibles du dessus.—Sumatra. *fascicolle*, Reitt.[3]
— Pronotum et côtés des élytres portant de longues soies dorées, dressées, très visibles; celles du dessus des élytres plus foncées. Base du pronotum crénelée de points assez gros, visibles de haut. Pubescence blanche moins dense, un peu soulevée. Long. : 6 mill.—Birmanie : Ténasserim, 1 ind. (British Museum)[4] . . . . . **arrowi,** sp. n.

[1] Reitt., 1886, *Notes Leyden Mus.*, **8**: 219.

[2] MacLeay, 1825, *Annul. javan.*, p. 48; Ritsema, 1889, *Notes Leyden Mus.*, **11** : 47; *ibid.*, **13** : 249. Je dois à l'amabilité de M. Gilbert J. Arrow la confirmation de cette synonymie que Ritsema avait déjà soupçonnée.

[3] Reitt., 1886, *tom. cit.* : 220.

[4] Je rapporte à cette espèce un individu un peu plus grand (6·5 mill.) qui semble un peu épilé, étiqueté : Cachin Hills (*H. L. Stanton*) (British Museum).

8. Soies dressées du pronotum noires. Dessus noir au moins sur le disque; dessous roux clair. Pubescence blanche abondante . . . . . 9.
— Soies dressées du dessus roux clair; dessus roux, brun ou noirâtre . . . 10.
9. Plus petit (5 mill.), en ovale régulier, brièvement arrondi en arrière et en avant. Soies dressées des élytres noires, plus courtes, moins visibles. Ponctuation élytrale plus fine, plus serrée.—Sumatra . . *hirsutum*, Pic.[5]
— Plus grand (6 mill.), plus élargi vers le milieu, plus longuement rétréci en arrière. Soies dressées des élytres très longues, plus nombreuses: poils blancs plus soulevés, en partie dressés.—Tonkin: Hoa-Binh, Lao Kay, Tien Yen . . . . . *maculosum*, Pic.[6]
10. Taille petite (4-5 mill.). Dessus roux; ovale, très rétréci en avant et longuement atténué en arrière; pubescence blanche assez longue, peu serrée, répandue sur la plus grande partie du dessus.—Assam, vallée, 1 ind. (*W. Doherty*) (British Museum) . . . . . **subhirtum**, sp. n.
— Taille plus grande (5–6 mill.), en ovale plus allongé, à côtés plus longuement parallèles . . . . . 11.
11. Forme large; pubescence de coloration variée. Dessus à ponctuation très fine et très serrée. Fossette humérale des élytres profonde, plus étroite, séparée de la fossette médiane.—Inde méridionale: Trichinopoli, Madura, Chambanagor . . . . . *mequignoni*, Pic.[7]
— Dessus plus foncé: brun de poix, noir sur le disque. Dessus moins densément ponctué. Fossette humérale large, se confondant avec la médiane. Pronotum plus prolongé en avant. Elytres plus brièvement rétrécis en arrière. Long.: 6 mill.—Java oriental: Zuyder gebiete: Senggoro, 1 ind. (ma coll.) . . . . . **consimile**, sp. n.
— Plus étroit, plus parallèle: dessus noir, brun noir ou roux; dessous roux clair. Pubescence blanche plus abondante sur tout le dessus. Long.: 5 mill.—Annam: Hué * . . . . . *hirtum*, Fleut.[8]
12. Pubescence dressée très fournie, dorée, plus claire que le dessus qui est brun roux. Macules blanches des élytres moins nombreuses et moins distinctes au milieu des soies dressées. Pronotum n'ayant que quelques poils blancs isolés. Long.: 6–7 mill.—Assam: monts Patkai, 2 ind. (*W. Doherty*) (British Museum) . . . . . **aureovestitum**, sp. n.
— Pubescence dressée sombre, peu visible au-dessus des macules blanches, nettes, nombreuses, même au pronotum . . . . . 13.
13. Dessus noir; dessous brunâtre. Plus court; élytres brièvement arrondis en arrière; pronotum plus transverse; légèrement impressionné en travers entre la base et le disque. Long.: 6 mill.—Assam, monts Patkai, 1 ind. (*W. Doherty*) (British Museum) . . . . . **assamense**, sp. n.
— Dessus brun roux ou brun foncé. Plus allongé, à côtés subparallèles; élytres plus longuement rétrécis en arrière. Pronotum sans impression distincte en avant de la base. Long.: 6–7 mill.—Birmanie: Mines de Rubis. British Bootang; nombreux ind. (British Museum et coll. R. Oberthür) . . . . . **dohertyi**, sp. n.

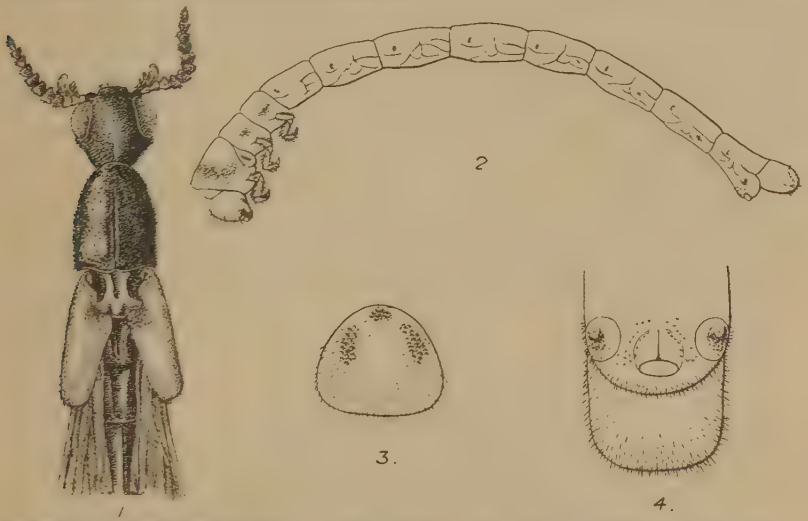
[5] Pic, 1916, *Mel. exot.-ent.*, **19** : 1.
[6] Pic, 1927, *ibid.*, **49** : 10.
[7] Pic, 1933, *ibid.*, **62** : 10.
* Un individu de Java oriental, d'un brun roux (coll. R. Oberthür) me semble appartenir à cette espèce. Comparé aux individus les plus clairs de *hirtum*, il en diffère cependant par la taille plus grande (6·5 mill.), la pubescence plus claire avec les soies dressées dorées, même sur le disque, la ponctuation du dessus plus fine, celle de l'abdomen plus serrée, plus rugueuse, les fossettes médiane et humérale confondues en une dépression transverse continue. Je désignerai cette race du nom de *P. hirtum* subsp. **oberthüri**, subsp. n.
[8] Fleutiaux, 1887, *Ann. Soc. ent. Fr.*, **1887** : 62.

A NEW INDIAN SPECIES OF *ATRACTOCERUS* (COL. LYMEXYLONIDAE)

By J. C. M. Gardner, F.R.E.S.
(Forest Research Institute, Dehra Dun, India.)

Atractocerus **quercus,** sp. n.

♀: Head, thorax and abdomen black; antennae with basal two segments brown, remaining segments dark brown or blackish towards the apex; elytra dark brown; wings smoky, the veins black except on the basal fourth or so where, with the exception of the anal vein, they are mostly testaceous; coxae and femora (except apices) dark brown; trochanters, tibiae and tarsi dull testaceous.



Figs. 1–4.—*Atractocerus quercus*. (1) ♀, anterior part of body; (2) larva, lateral view; (3) larva, asperities on apex of 9th abdominal segment; (4) larva, posterior extremity, ventral view.

Eyes widely separated above, with short dark hairs. *Head* densely rugulose, with short black hairs. *Pronotum* distinctly longer than wide, the posterior margin weakly sinuate, sides nearly parallel on basal half, rather strongly narrowed towards the rounded apex; with moderately fine punctures; with a deep longitudinal median groove which extends from the base, where it is shallower, and disappears near the apical fourth. *Scutellum* with two shining longitudinal ridges on each side of a short but deep groove; apex with a small median lobe and a flattened rounded lobe on each side which slightly projects over the elytron when at rest. *Elytra* slightly longer than prothorax, bluntly rounded apically, the surface closely and finely granulate. *Abdomen* and ventral surface of thorax shining, with fine punctures and a thin clothing of pale hairs. Sternum of last visible abdominal segment not compressed. Length, 20–24 mm. Width of thorax in largest specimen, 1·5 mm.

♂: Maxillary palp much larger than in female. Sternum of last visible abdominal segment strongly compressed into a narrow vertical trough. Length, 11–20 mm.

United Provinces: Mundali, Chakrata, 8,400 ft.

Type in British Museum, paratypes in British Museum and Forest Research Institute, Dehra Dun. Described from twelve females (one type) and nine males

reared from pupae extracted by the writer from a large felled log of *Quercus dilatata*, May 1934. Numerous larvae were also collected from the otherwise apparently sound and hard wood.

The only other species in this collection are *A. reversus*, Wlk., and *A. emarginatus*, Cast., from which the new species differs greatly, especially in having widely separated eyes. Judging from the key to oriental species given by Karny (1922, *Treubia*, **3** : 6), the new species comes nearest to *A. niger*, Strohm., from South India, but may be distinguished from that by having brown elytra.

The Larva.

Mature larvae of the genus *Atractocerus*, judging by the four species known to me, are characterised by the cylindrical obliquely elevated ninth abdominal segment, the truncate apex of which carries two anteriorly converging lines of asperities forming, roughly, the two sides of a triangle; the enclosed space with or without smaller asperities.

In *Melittomma* (*insulare*, Fairm.,* *sericeum*, Harris †) the apex of a somewhat similar ninth segment has a circular raised and serrate marginal rim.

The specific characters of three Indian and one African (*brevicornis*) species are indicated below :—

1. Asperities on apex of 9th segment not transverse-cariniform, arranged in three groups, one apical separated by a gap from a longitudinal group on each side (fig. 3); the central space enclosed by these groups smooth. Head almost colourless, rather strongly swollen dorsally. Asperities enclosing anterior part of anal lobe (fig. 4) few and rather coarse. Larva slender, length up to about 23 mm. . . . . *quercus*, sp. n.

   Marginal asperities on apex of 9th segment transverse-cariniform, the central space enclosed by them asperate. Head darker. Asperities anterior to anal lobe very fine and numerous . . . . . 2.

2. The small central asperities on apex of 9th segment transverse. Head light brown. Length up to 45 mm. . . . . *emarginatus*, Cast.

   Marginal asperities only or patch on 9th segment transverse, the central asperities point-like . . . . . 3.

3. Marginal transverse asperities on 9th segment small except one at the apex which is distinctly larger. Head testaceous. Length about 20 mm. *reversus*, Wlk.

   Marginal asperities on 9th segment large, the apical one not markedly larger. Head castaneous. Length about 45 mm. . . . . *brevicornis*, L.

The Pupa.

The pupa of *A. quercus* resembles the adult in general form. Completely white. Abdominal terga 3 to 7 each with a small group of asperities. First five abdominal segments with a ventro-lateral protuberance having a weakly sclerotised curved ridge, on each side. There are no lateral spines. Caudal extremity with two small soft subacute projections, not long and acute as figured for *A. emarginatus* by Fulmek.

Literature on larvae of *Atractocerus*.

A. brevicornis, L.—Gardner, 1934, Bull. ent. Res., **25** : 149, fig. (Africa).
A. crassicornis, Clark.—Clark, 1931, Proc. Roy. Soc. Vict., **43** : 120, fig. (Australia).
A. emarginatus, Cast.—Gardner, 1926, Ind. For. Rec., **12** : 280, fig.; 1929, Ind. For. Rec., **14** : 111, fig.; Fulmek, 1930, Treubia, **12** : 389, figs. (also egg, first stage larva, pupa) (India, Ceylon, Sumatra, etc.).
A. kreuslerae, Pasc.—Clark, 1926, Austral. For. J., **1926** : 128, figs. (Australia).
A. reversus, Walk.—Gardner, 1929, Ind. For. Rec., **14** : 111, fig. (Ceylon; India).

* Gahan, 1908, *Trans. ent. Soc. Lond.*, **1908** : 278, pl. 6.
† Boving and Craighead, 1931, *Ent. amer.*, **11** : pl. 124.

ON SOME BRACONIDS (HYM.)

By D. S. Wilkinson, F.R.E.S.

(*Imperial Institute of Entomology.*)

Cedria anomala, sp. n.

♀. Red testaceous; the ovipositor sheaths, and about the eight apical joints of the antennae, darkened or black; stigma and wing-veins light red-brown; wings lightly infumated; stigma with a basal cloud; there is a broad dark band across the carapace occupying apparently the apical half of the 2nd tergite.

♀. *Head* with only minute, widely spaced punctation; the flagellum nearly as long as the combined length of the head, thorax, and 1st tergite. *Thorax*: mesonotum minutely rugose anteriorly, shining and with minute, widely spaced punctation posteriorly, and in the posterior half with a median, longitudinal, shallow, rather broad sulcus; notauli obsolete; propodeon in about the basal third with a median longitudinal carina which bifurcates at its apex to form in the apical two-thirds of the propodeon a large areola; the greatest breadth of this areola, which is greater than the length of the median basal carina, is before the middle, and from this point costulae are emitted which presently branch to form other areae. *Abdomen*: the length of the carapace (fig. 1) equal to the combined length of head and thorax; 1st tergite with its apical breadth very definitely greater than its median length (32 : 20), and its surface, as that of the 2nd and 3rd tergites, throughout with well-marked, well-spaced, longitudinal carinae, between which is weak, indefinite, secondary sculpture; 2nd suture wanting; beyond the apex and below the level of the apparently true 3rd tergite is a transparent though not membranous, rather broad fringe,* which is strongly emarginate; visible portions of ovipositor sheaths shorter than the 1st tergite 12 : 20).

Length, 2 mm.

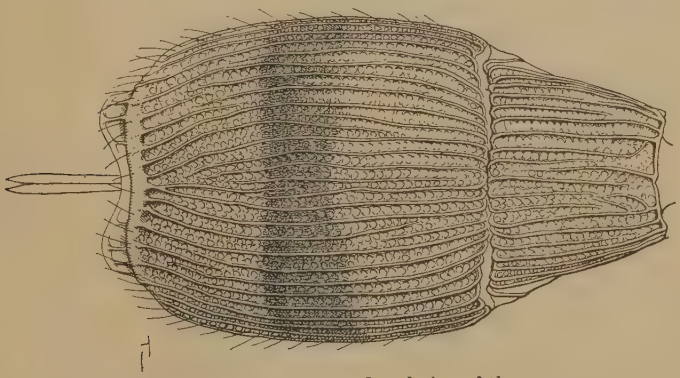


Fig. 1.—*Cedria anomala*, sp. n., dorsal view of the carapace.

Burma: Myohla Res., N. Toungoo, 1 ♀, 20.i.1929 (*D. J. Atkinson*).

Type. The unique specimen has been deposited in the British Museum.

Host. This species is recorded to be parasitic on the Pyralid, *Hapalia machaeralis*, Walk.

Unquestionably referable to my very recently described genus *Cedria*, this

* It is impossible to say whether this fringe is part of the 3rd tergite or the remains of the 4th or subsequent tergites. It is present in *C. paradoxa* also, but not so markedly.

new species is easily separable from *paradoxa*, the only other one known, not only on the sculpture of the carapace but also on the areation of the propodeon.

Apanteles fakhrulhajiae, Mahdn.

Apanteles fakhrulhajiae, Mahdihassan, 1925, J. Sci. Ass., Vizianagaram, **2** : 81. Wilkinson, 1928, Bull. ent. Res., **19** : 135.
Apanteles rufulus, Wilkinson, 1930, Bull. ent. Res., **21** : 154; 1932, Trans. ent. Soc. Lond., **80** : 336 (*syn. n.*).

India : Namkum, 9 ♀♀, 1 ♂, 1933 (*Lac Research Institute*).

Host. The majority of these specimens are labelled as having been bred from (?) the Blastobasid moth *Holcocera pulverea*, Meyr., the remainder as having been caught in the laboratory or bred from Kusum lac.

The original description of this species is altogether inadequate, as I pointed out in 1928 when relegating it in my revision to the section on species unknown or otherwise of doubtful position. In January, 1929, however, I received a letter from Mr. Mahdihassan offering me an illustration and, apparently, a redescription; but I received no reply to my answer in which I asked for some specimens, pointing out that in order to draw up a redescription Mr. Mahdihassan must have some material.

On the other hand, in the early part of 1928 I received from Washington, from Dr. A. B. Gahan, a single female specimen, labelled "*fakhrulhajiae*, Mahd., det. Mahd. and Gahan," which in a subsequent letter to me Dr. Gahan said was one of three sent to him by Mahdihassan and determined by him (Mahdihassan) as *fakhrulhajiae*. He (Gahan) was uncertain whether they were not really a part of the type material, and at any rate he deemed it justifiable to consider them as authentic representatives of the species. At that time, however, I was not inclined to agree, with the result that the specimen, which had been presented to the British Museum, was not further examined; neither did the species find its way into my key. Consequently it was overlooked in 1930 when, on the urgent representations of the late Dr. Waterston, I described *A. rufulus*. Now, however, that I have further material from India that agrees perfectly with the single specimen sent by Dr. Gahan, I intend to accept the latter as part of the type material and to adopt the above synonymy.

Ecphylus hylesini, Ratzeburg 1848.

France : Hyères, Var, 7 ♀♀, 1 ♂, 1931 (*D. de Leon*).

Host. This series is labelled "ex *Pinus halepensis* attacked by *Pityogenes calcaratus*."

Helorimorpha coffeae, Brues 1924.

Kenya Colony : Kiambu, 30 ♀♀, 9 ♂♂, 25.ii.1931 (*R. H. Le Pelley*).

Host. This series is labelled as having been bred from adults of the Pentatomid bug, *Antestia lineaticollis*, Stål.

In the British Museum there are specimens of *Helorimorpha africana*, Brues, named by Brues, but none of *coffeae*; the material before me however agrees perfectly with Brues' description.

Cameron's *H.* (*Stictometeorus*) *rufa*, the type of which is in the British Museum, is very similar to and possibly even synonymous with *coffeae*; but, since Cameron described his species from the Cape and the unique specimen is in such bad condition, I consider that there is no necessity even to attempt to establish the synonymy of these two species, which if established, would only result in the sinking of the very obviously suitable name given by Brues.

OBSERVATIONS ON THE COCCIDAE OF SOUTHERN RHODESIA.—VI.*

By W. J. Hall, D.Sc., F.R.E.S.
(*Mazoe, Southern Rhodesia.*)

Hemilecanium coriaceum, sp. n. (Fig. 1.)

Adult female moderately convex and irregularly subcircular in outline; brown to dark brown in colour and covered with a greyish film of crystalline matter that readily flakes off.

Diameter of adult female, 4 mm.

Antennae of the adult female relatively short and usually consisting of six segments. The 3rd segment is very much the longest being rather longer than the combined lengths of the 4th, 5th, and 6th. There is no marked difference in the length of the other segments but the 1st is usually the shortest and the 6th the longest. Some specimens show an incomplete division of the 3rd segment. *Legs* relatively short, with tarsi slightly shorter,

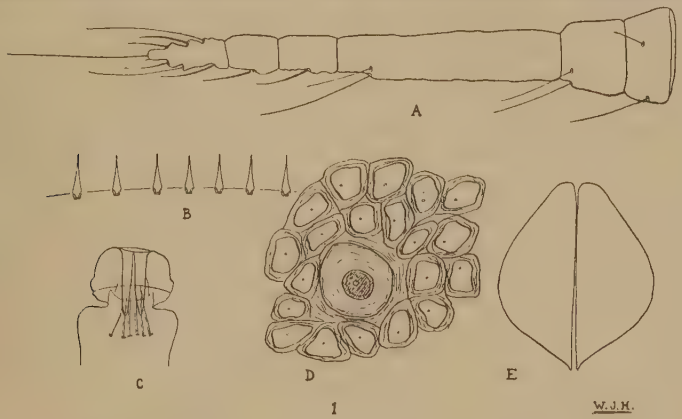


Fig. 1.—*Hemilecanium coriaceum*, sp. n.: Adult ♀. A, antenna, × 228; B, marginal spines, × 228; C, large glandular pore from the dorsal dermis, × 340; D, cellular structure of dorsal dermis with glandular pore, × 115; E, anal valves, × 115.

and femora a little longer, than the tibiae. Foot with four digitules of which the tarsal pair are of normal form; the ungual pair consists of one which is short, stout and conspicuously knobbed at the distal extremity and the other of similar length but of slender form terminated by the usual small swelling. *Margin* closely set with a fringe of short stout spines. These spines are broad at the base but they taper evenly to a sharp point; each fits into a well-defined socket. They are 24–30μ long and set apart by a distance approximately equal to their length. Stigmatic clefts not apparent nor are there any stigmatic spines. In some cases there appears to be a short break in the fringe of marginal spines in the area corresponding to the stigmatic cleft and in one example a single spine of a similar length, but stouter and less sharply pointed than those of the marginal series, was present. Valves of the anal operculum triangular with outer angle rounded. Anal ring with ten setae. *Dermis* relatively thick and unusually tough; the dorsal dermis is closely set with irregularly shaped cells and there are in addition numerous large and conspicuous specialised glandular pores; ventral dermis with numerous minute circular pores communicating with tubular ducts.

* The previous part of this series appeared in 1932, *Stylops*, **1**: 185–195.

On an unknown plant, Victoria Falls, 29.vii.29.

This is a remarkable species in many respects and particularly in the thickness and toughness of its dermis. It has been placed tentatively in the genus *Hemilecanium*, although it lacks the four large cribriform plates usually associated with this genus. Nevertheless it agrees with *H. imbricans*, Green, in the nature of the marginal fringe, the presence of ten setae on the anal ring and of scattered conspicuous glandular pores on the dermis.

Lecanium elongatum, Sign.

Lecanium elongatum, Sign., 1873, Ann. Soc. ent. Fr., (5) **3** : 404.
„ *longulum*, Green, 1904, Coccidae of Ceylon, **3** : 221.
„ *elongatum*, Brain, 1920, Cocc. South Africa, Bull. ent. Res., **11** : 5.

Host Plants.

Leguminosae	*Acacia decurrens*, *A. melanoxylon*, *A.* spp. *Albizzia* sp., *Cajanus indicus*.
Gramineae	*Brachiaria brizantha*.
Vitaceae	*Vitis vinifera* (Vine).

This species is widely distributed throughout the Colony and is not uncommon on certain species of *Acacia*.

Brain described a species (*loc. cit.* p. 6) under the name of *pseudelongatum* from *Acacia caffra* at Pretoria which is said to differ from *elongatum* in the lengths of certain antennal segments and the fact that the marginal spines are longer and closer together. In the comparatively long series of preparations from Rhodesian material, specimens are represented which range from typical *elongatum* to a form more nearly approximating *pseudelongatum*. In no case, however, do both the antennae and the marginal setae agree with the *pseudelongatum* form; where the antennae are of this form the marginal setae are of the *elongatum* type and vice versa. In view of this variation in Rhodesian specimens and the absence of any sharp dividing line in the range examined, one is led to believe that they are all referable to *elongatum*. Typical *pseudelongatum*, as described, has not been found in Rhodesia but it would fit on to the end of the present range without any sharp line of cleavage, and this gives rise to the suspicion that *pseudelongatum* may only prove to be another form of *elongatum*.

Lecanium hesperidum, L.

Coccus hesperidum, Linn., 1758, Syst. Nat. (Ed. X) **1** : 455.
Lecanium hesperidum, Green, 1904, Coccidae of Ceylon, **3** : 188.
„ „ Brain, 1920, Cocc. South Africa, Bull. ent. Res., **11** : 3.

Host Plants.

Anacardiaceae	*Mangifera indica* (Mango).
Apocynaceae	*Plumeria* sp. (Frangipani).
Begoniaceae	*Begonia* sp.
Bignoniaceae	*Tecoma* sp.
Coniferae	*Pinus sylvestris*.
Euphorbiaceae	*Phyllanthus* sp.
Lauraceae	*Persea gratissima* (Avocado Pear).
Malvaceae	*Gossypium* sp. (Cotton).
Meliaceae	*Cedrela toona* and *Melia azadarach*.
Myrtaceae	*Psidium guajava* (Guava).
Polypodiaceae	*Adiantum* sp.
Proteaceae	*Grevillea* sp.
Rutaceae	*Citrus* spp.
Vitaceae	*Vitis vinifera* (Vine).

This species is widely distributed throughout Southern Rhodesia and the list of host plants given above is probably merely a fraction of those attacked. It is a pest of citrus in this Colony and does at times prove troublesome. It is not so much the direct injury caused to the tree, but the damage done indirectly by the development of "sooty mould" in the copious deposits of "honeydew" to which the individuals give rise. This renders the fruit very unsightly and may necessitate heavy culling in the Pack House. This pest may go ahead very rapidly during the rainy season, *i.e.* from the end of November until the end of March, and the "sooty mould" reaches its maximum development by about the end of June. All the trees on the British South Africa Company's Citrus Estates are fumigated annually for the control of Red Scale—*Aonidiella aurantii*, Mask.; this annual fumigation also serves to keep *L. hesperidum*, L., in check at the same time. Young trees seem to be more susceptible to attack than older trees, and their growth may be seriously retarded if the pest is not kept in check.

L. hesperidum, L., is a variable species both in the live state and under the microscope. The antennae are variable; in some examples the 3rd segment is longer than the 4th, whilst in others the reverse is the case; the stigmatic spines vary considerably in length and the marginal setae may be either simple or very slightly frayed at the tip.

It is interesting to note that, up to the present time, *hesperidum* has not been collected on any of the indigenous trees or plants of the Colony.

Lecanium msasae, sp. n. (Fig. 2.)

Adult female small, flat and approximately circular in outline. Colour very dark brown, almost black, but much paler round the margin. Dorsum with irregularly distributed flat translucent white crystalline plates of irregular shape but of more or less uniform size. Anal cleft not apparent.

Younger individuals are somewhat paler brown with usually a plum-coloured tinge.

Length of adult female, 2 mm.; breadth, 1·8 mm.

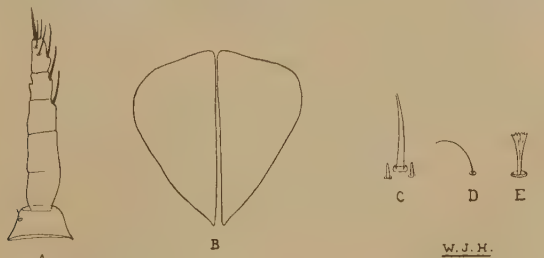


Fig. 2.—*Lecanium msasae*, sp. n.: Adult ♀. A, antenna, × 228; B, anal valves, × 228; C, stigmatic spines, × 340; D, marginal seta, × 340; E, flattened seta from the dorsal dermis, × 340.

Antennae of the adult female relatively poorly developed; usually of five segments but sometimes with four and in two instances with only three. The 2nd segment is much the longest and the 4th the shortest, but very little shorter than the 1st, 3rd and 5th which are subequal. The 2nd segment in most examples shows a partial division. *Eyes* prominent in older specimens. Legs wanting. *Margin* with a few simple setae at wide intervals, these are much curved and about 22μ long. Stigmatic clefts wanting but marked by three stigmatic spines, the median spine being very much longer (35μ) than the laterals (8μ) which are small and inconspicuous. In older individuals all but a clearly delimited

marginal area is heavily chitinised. Dorsum more or less evenly studded with minute pores and with a few scattered setae which are broadly dilated and irregularly dentate at the distal extremity. Valves of the anal operculum with the outer angle broadly rounded and the apical angle acute. No apical setae are discernible. A few larger pores occur in a single median series extending from the anal operculum in an anterior direction. The number of pores present is usually four or five.

On *Brachystegia* sp. (Leguminosae), The Kopje, Salisbury, 31.iii.29.

The specific name has been derived from the native name—Msasa—for the tree on which the specimens were found. It is one of the commonest veldt trees in the Colony.

It has been thought advisable to assign this material to the genus *Lecanium* (sens. lat.) as it does not appear to fit satisfactorily into any of the recognised subgenera. The absence of limbs, poorly developed antennae and dermal characters are noteworthy features of this striking form.

Lecanium oculata, Brain.

Saissetia oculata, Brain, 1920, Coec. South Africa, Bull. ent. Res., **11** : 13.

On *Grevillea robusta* (Proteaceae), Bulawayo, 20.x.28.

Through the kindness of Mr. H. K. Munro of the Department of Agriculture, Pretoria, it has been possible to compare Rhodesian individuals with authentic specimens of Brain's species and they have been found to be identical in all respects.

Brain (*loc. cit.*) in assigning this species to the genus *Saissetia* expressed doubt as to whether his specimens were fully mature. The mature insect is low convex with a rather thick and tough dermis but not chitinised; the derm cells are small, scattered, round or oval in shape and tend to be fewer and smaller at the margin. There are no tubular ducts in the dermal tissue. On the other hand, the presence of a stout seta on either anal valve is a character more usually associated with the genus *Saissetia*. Nevertheless the general characters of this form seem to favour its inclusion in that section of the genus *Lecanium* of which *L. elongatum*, Sign., may be taken as the type.

Lecanium **rhodesiensis,** sp. n. (Fig. 3.)

Adult female flat convex and oval in outline; dark brown in colour sometimes with a tinge of green but always a darker brown at the margin. Stigmatic and anal clefts indicated by paler brown areas. Dorsum coated with irregularly shaped flat crystalline plates. Margin with a uniform fringe of setae; this can readily be seen with the naked eye and is conspicuous under a binocular microscope.

Length of adult female, 3–4·5 mm.; breadth, 1·75–2·5 mm.

Antennae of the adult female eight-segmented. The segments are somewhat variable in length but the 3rd is always the longest; the 7th is usually the shortest with the 6th very little longer, but in some cases the 6th is the shortest. The division between the 4th and 5th segments and also between the 7th and 8th is occasionally incomplete. *Legs* of normal development, the tarsi being about $\frac{2}{3}$ the length of the tibiae; foot with four digitules of which the ungual pair are stout and dilated at the distal extremity. *Margin* set with a fringe of long simple setae; these are more or less evenly spaced (40μ) and of uniform length (100μ). Stigmatic cleft shallow with three bluntly pointed spines, the laterals are approximately $\frac{2}{3}$ the length of the median spine which is itself about $\frac{2}{3}$ that of the marginal setae. The median spine is very easily broken off, and in a long series of preparations it is only present in six examples. Just within the margin is a single row of minute setae set at wide intervals. There are usually three or four small submarginal tubercles on either side. Valves of the anal operculum triangular with the base and outer

edge approximately equal in length; the outer angle is rounded and there are usually three short setae at the apex. *Dermis* rather thick and tough with numerous minute pores set in oval translucent areas. The arrangement of these is more or less uniform. A few multilocular pores occur scattered at wide intervals over the ventral dermis, they are few in number even round the anal operculum. A series of similar pores runs mediodorsally from the vicinity of the anal valves to a point midway between the insertion of the hind pair of limbs. The actual number of these pores is small but they form a well-marked series. Dorsal dermis with scattered short somewhat stout spines with blunted tips; these do not show any regular arrangement but are scattered over the dorsal dermis.

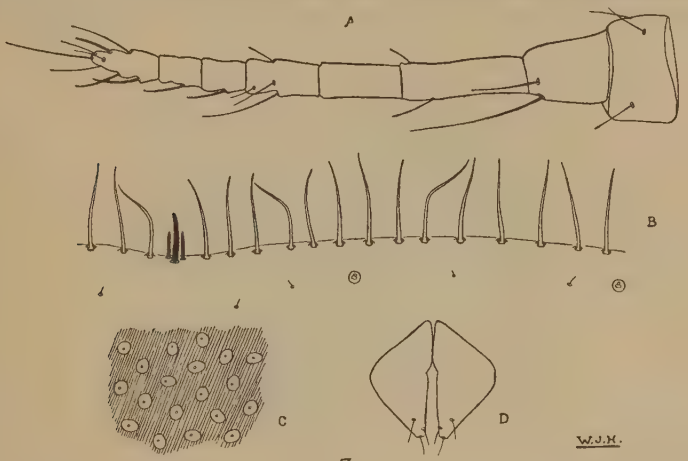


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FIG. 3.—*Lecanium rhodesiensis*, sp. n.: Adult ♀. A, antenna, × 228; B, stigmatic cleft and portion of margin, × 115; C, cellular structure of dorsal dermis, × 228; D, anal valves, × 115.

On unknown host plant, El Dorado, 27.iv.29 and Victoria Falls, 29.vii.29.

This species is remarkable on account of the length and uniformity of the marginal setae.

Platysaissetia kellyi, Brain.

Saissetia kellyi, Brain, 1920, Cocc. South Africa, Bull. ent. Res., **11** : 12.

On *Brachystegia* sp. (Leguminosae), The Kopje, Salisbury, 31.iii.29, 23.iii.32 and 8.vi.32.

Rhodesian material has been compared with authentic specimens from the Union of South Africa. The latter were old adult females in which the dermis is so thick and heavily chitinised that it is impossible to make a preparation for study that will reveal the microscopic characters. In general appearance Rhodesian examples are indistinguishable from those ex South Africa, and it was noted in both cases that a pseudomargin was present—although only discernible in the old adult females—and for this reason it would seem that this species should more properly be assigned to the genus *Platysaissetia*.

The microscopic characters of the young adult female agree perfectly with Brain's description with the exception that the antennae in Rhodesian individuals are eight-segmented; the partial division of the 5th segment in some individuals, however, seems to indicate that the antennae may be either of eight or nine segments. This is a striking species with distinctive characteristics.

Saissetia hemisphaerica, Targ. (Fig. 4.)

Lecanium hemisphaericum, Targ., 1867, Studii sul Cocc., pp. 26, 27, etc.
" " Green, 1904, Coccidae of Ceylon, **3** : 232.
Saissetia hemisphaerica, Brain, 1920, Cocc. South Africa, Bull. ent. Res., **11** : 9.

On "Tree Fern," Salisbury, 19.iii.28; *Beaumontia grandiflora* (Apocynaceae), Government Forest Nursery, Salisbury, 9.ix.32; "Maidenhair fern," Salisbury, 12.iii.16, ex coll. Dept. of Agric. Salisbury No. 775; "ferns," Salisbury, Nov. 1932, ex coll. Dept. of Agric. Salisbury, No. 3379, coll. A. Cuthbertson.

Rhodesian material is typical of this widely distributed species. The specimens collected on *Beaumontia* showed a narrow but distinct white rim around the margin composed of a loose mass of cottony fibres. The presence

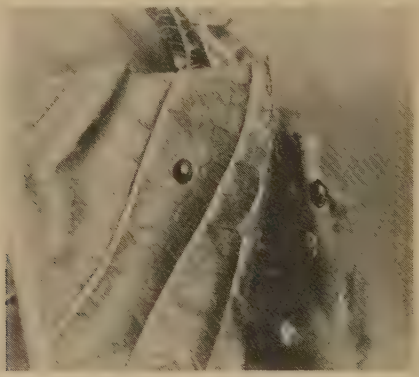

Fig. 4. *Saissetia hemisphaerica*, Targ. Adult females on *Beaumontia grandiflora*, natural size.

of this narrow fringe of cottony secretion around the margin is not uncommon in this species, but it has rarely been seen so well developed as in the material above referred to. This character suggests that *S. hemisphaerica* is a connecting link between the genera *Saissetia* and *Protopulvinaria*.

Saissetia monotes, sp. n. (Fig. 5.)

A highly convex very dark brown species of irregularly circular outline. Young adult females with conspicuous thickenings of the dermis forming rounded carinae. Four of these are arranged in rectangular form, the posteriorly situated carina is bent inwards and the anal valves occupy the angle. Similar carinae run down to the margin from the angles formed by the rectangular arrangement of the dorsal carinae. In addition three extend to the margin from the anterior carina and one from the middle of each lateral carina. The thickenings running down to the margin are more or less pear-shaped, being narrow at the margin and broadening posteriorly to their attachment with the dorsal carinae. Between the various carinae the dermis is sunken. There is a flattened rim around the margin at the point of attachment to the host plant.

In old adult females the arrangement of the carinae becomes obscured and is much less conspicuous than in the younger stages. They are very highly convex—almost $\frac{3}{4}$ spherical—of irregular shape, rounded and somewhat flattened above. The dermis with small, more or less uniformly scattered, minute crystalline masses which give to it a rugose appearance.

Diameter of adult female, 4–5 mm.; height, 2·5–3·5 mm.

Adult female with eight-segmented antennae; the average length in μ of the various segments in 16 antennae was as follows:—I, 35; II, 45; III, 70; IV, 57; V, 45; VI, 26; VII, 26; VIII, 47. The relative lengths of the segments in the examples examined did not show much variation. The 2nd and 5th segments each carried a long and slender seta. *Legs* relatively small for the size of the insect with tarsi about ½ the length of the tibiae. Tarsal digitules of normal form, one of the ungual digitules stout and conspicuously knobbed at the distal extremity, the other slender and faintly knobbed resembling a

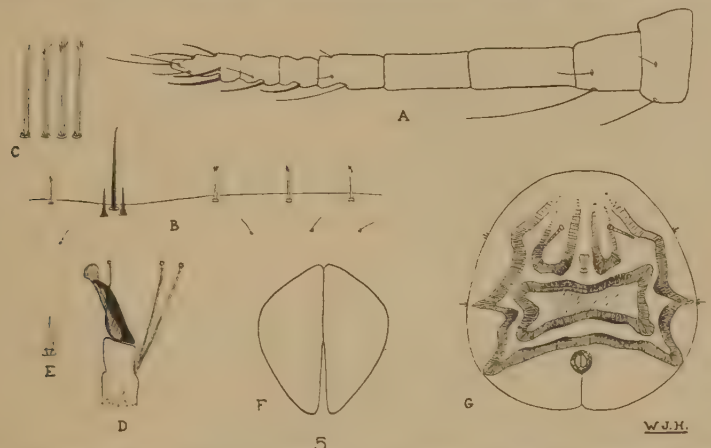

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FIG. 5.—*Saissetia monotes*, sp. n.: Adult ♀. A, antenna, × 228; B, stigmatic cleft and portion of margin, × 115; C, marginal spines, × 340; D, foot, × 340; E, spine from the dorsal dermis, × 340; F, anal valves, × 115; G, arrangement of chitinous bands in young adult female, × 12.

shortened tarsal digitule. *Margin* with a fringe of setae about 45μ long set at relatively wide intervals of approximately 90μ; the setae are faintly dilated and frayed at the distal extremity. Stigmatic clefts very shallow with three spines; the median spine is long (about 115μ) gradually tapering to a fine point, laterals slender, pointed and slightly shorter than the marginal setae. Just within the margin is a series of simple setae about ½ as long as those of the margin but set at much the same distance apart. *Anal valves* with outer angle broadly rounded and the outer edge rather longer than the base. The anal valves are surrounded by a small but heavily chitinised area of irregular outline. The anal cleft is usually partially sealed in old individuals. *Derm cells* oval, numerous and distributed all over the dermis. In young specimens thickened bands are noticeable, the arrangement of these is shown in Fig. 5*g*, it appears to follow a definite plan, but it is difficult to make out in an old individual owing to the high convexity and consequent folding when prepared for microscopical examination. Dermis with numerous tubular spinnerets. *Dorsal dermis* with a few scattered sharply pointed spines (about 17μ long) and the ventral dermis with a few multilocular pores, more particularly in the vicinity of the anal valves.

On *Monotes glaber* (Dipterocarpaceae), Melfort, 7.iii.28 and El Dorado, 1.xii.28. Attacking the smaller branches.

The form and characters of this species, and particularly those of the young adult female, are so striking that they should readily serve to distinguish it. The specimen selected as " type " is a young adult female.

Saissetia nigra, Nietn.

Lecanium nigrum, Nietn., 1861, Enemies of the Coffee Tree, p. 9.
,, ,, Green, 1904, Coccidae of Ceylon, **3** : 229.
Saissetia nigra, Brain, 1920, Cocc. South Africa, Bull. ent. Res., **11** : 9.

Host Plants.

Anacardiaceae	*Rhus* spp.
Anonaceae .	*Anona senegalensis* and *A.* spp.
Apocynaceae	*Rauwolfia caffra.*
Araliaceae .	*Cussonia arborea.*
Combretaceae	*Combretum* sp.
Compositae .	*Bidens pilosa.*
Euphorbiaceae	*Uapaca kirkiana.*
Malvaceae .	*Gossypium* sp.
Meliaceae .	*Cedrela toona.*
Melianthaceae	*Bersama* sp.
Moraceae .	*Ficus capensis.*
Ochnaceae .	*Ochna* sp.
Rosaceae .	*Rosa* sp.
Rutaceae .	*Citrus aurantium.*

also on " Japanese Balsam."

This species is widely distributed throughout the Colony and appears to have a considerable range of host plants. It is particularly common on *Anona* spp.

Saissetia oleae, Bern.

Chermes oleae, Bern., 1782, Mem. Hist. nat. Acad. Marseille, **1782** : 108.
Lecanium oleae, Green, 1904, Coccidae of Ceylon, **3** : 227.
Saissetia oleae, Brain, 1920, Cocc. South Africa, Bull. ent. Res., **11** : 10.

Host Plants.

Anacardiaceae	*Lannea discolor.*
Euphorbiaceae	*Uapaca kirkiana.*
Leguminosae	*Acacia* spp., *Bauhinia* sp., *Brachystegia* sp., *Cassia* sp., *Erythrina tomentosa.*
Malvaceae .	*Gossypium* sp.
Moraceae .	*Ficus* spp.
Proteaceae .	*Protea abyssinica.*
Vitaceae .	*Vitis vinifera.*

This is a relatively common species in Southern Rhodesia with probably a much more extensive range of host plants than that quoted above.

Newstead described a species under the name of *Saissetia persimilis* (1917, *Bull. ent. Res.*, **7** : 362) of which he stated " the one salient character by which this Coccid can be distinguished from *Lecanium* (*Saissetia*) *oleae*, Bern., is the non-reticulated appearance of the derm." Brain (*loc. cit.*) records both *oleae* and *persimilis* from the Union of South Africa.

In a long range of Rhodesian specimens very considerable difference has been found to exist in the degree of development of the dermal reticulation. In some individuals it is general, in others it can only be faintly detected in one small area. Marked variation can be found amongst the different individuals of the same colony, and it would seem to the writer that there is some correlation between degree of reticulation and age of the specimen; the large oval dermal cells are always apparent, but the intercellular reticulation appears to become more obscure with age.

It is suspected that *persimilis* is probably only a form of *oleae*; if it does

exist, it must refer to a species that is devoid of any reticulation in both young and old adult females.

Saissetia signatum, Newst.

Lecanium (*Saissetia*) *signatum*, Newstead, 1917, Bull. ent. Res., **7** : 363.

On *Uapaca kirkiana* (Euphorbiaceae), The Kopje, Salisbury, 2.iii.28 and Theydon, 17.iii.28; *Protea abyssinica* (Proteaceae), Inyazura, 15.iii.28.

It is a little doubtful whether it is correct to assign this material to *signatum*, Newst. Newstead refers to his species as being very like the flat forms of *Saissetia nigra*, Nietn. Rhodesian examples are decidedly flat, and in this respect they are very different in general appearance from typical *nigra* which is relatively common in the Colony.

Abundant authentic material of *signatum* has been secured through the kindness of Mr. H. Hargreaves of the Department of Agriculture, Uganda. Rhodesian specimens agree reasonably well with this material except that the ⊥-shaped ridge is not so pronounced. Under the microscope they are indistinguishable. The Rhodesian material is, therefore, assigned tentatively to *signatum* in view of its close approximation to that species and its marked difference from typical *nigra*.

Saissetia subpatelliforme, Newst.

Newstead, 1917, Bull. ent. Res., **7** : 366.
Brain, 1920, Cocc. South Africa, Bull. ent. Res., **11** : 13.

On *Citrus* spp. (Rutaceae), collected on several occasions at Mazoe, Umtali and Sinoia; on *Cedrela toona* (Meliaceae), Salisbury, 12.vi.17, ex coll. Dept. of Agric. Salisbury No. 877; on *Melia azadarach* (Meliaceae), Salisbury, 17.viii.09, ex coll. Dept. of Agric. Salisbury No. 18.

It seems highly probable that the two lots of material in the collections of the Department of Agriculture, Salisbury, above referred to were the original from which specimens were sent to Brain for identification and recorded by him (*loc. cit.*) as *subpatelliforme*.

S. subpatelliforme is a relatively common species on *Citrus* in this Colony. It can hardly be termed a pest, but one does occasionally find heavily infested branches and then much "honeydew" is secreted in which "sooty mould" subsequently develops. For this reason it has potentialities as a citrus pest.

Rhodesian specimens have been compared with Newstead's type through the courtesy of Mr. F. Laing of the British Museum.

Newstead was unable to describe the median stigmatic spine as it was missing in all his preparations. Presumably they must also have been missing in Brain's specimens as he makes no reference to it. The median spine is relatively long (75μ) being three to four times the length of the laterals (18μ); it is somewhat slender, gradually tapering to a blunted tip.

Toumeyella **lomagundiae,** sp. n. (Fig. 6.)

Old adult female very highly convex the height being approximately the same as the diameter. The sides are roughly vertical with the top more or less evenly rounded but surmounted at the apex by a minute protuberance. The margin is outwardly turned so as to give a small flattened base. On either side of the dorsum is a large and usually conspicuous dent as though the insect had been pinched between the finger and thumb. In cross-section the adult female is either irregularly broadly oval or circular. In some specimens the dorsum exhibits vertical ridges making it six or seven sided. The colour is a dull brown, darker brown generally in the vicinity of the ridges. The surface of the dorsum is not smooth but has little irregularly shaped flattish protuberances at wide intervals.

Very young specimens have a distinct dorsal keel and the margin is set with crystalline outgrowths which are more or less regular and tend to be conical in shape. Similar conical outgrowths occur submarginally and are directed outwards towards the margin. In somewhat older specimens three spurs run down to the margin from the dorsal keel on either side, the conical marginal processes are present and similar crystalline masses occur at intervals over the dorsum giving a somewhat glassy appearance.

Diameter of adult female, 5·5–7·5 mm.; height, 5–7·5 mm.

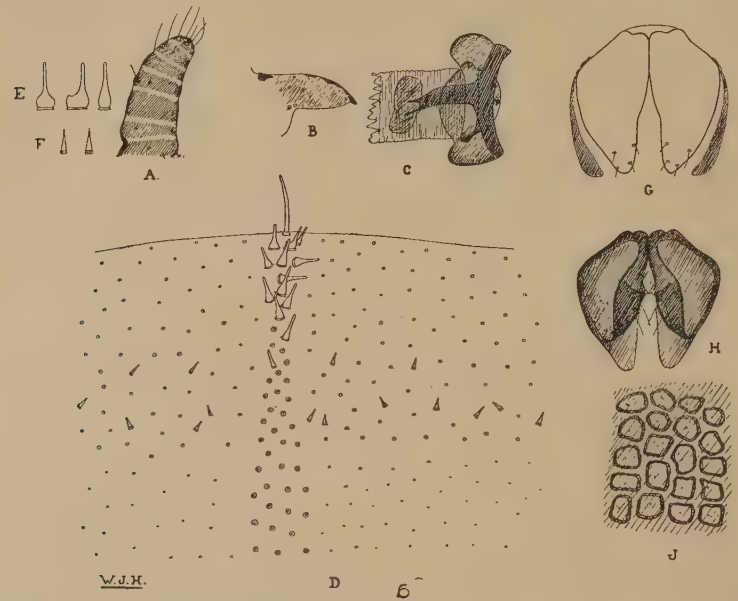


Fig. 6.—*Toumeyella lomagundiae*, sp. n.: Adult ♀. A, antenna, × 228; B, rudimentary limb, × 228; C, spiracle, × 228; D, portion of margin showing stigmatic and marginal spines, × 115; E, stigmatic spines, × 228; F, marginal spines, × 228; G, anal valves, × 115; H, anal valves showing internal sclerotic processes, × 115; J, cellular structure of dorsal dermis, × 115.

Antennae of the adult female very short and stout with a number of segments varying from four to seven. The demarcation of the segments is not very clear as the segments are all very short and roughly equal in length with the exception of the 3rd which is much the longest. In some individuals the division between the 2nd and 3rd is either absent or incomplete and then the 2nd is the longest. A few short setae occur on the terminal segments as shown (Fig. 6*a*). *Legs* rudimentary, consisting of a minute tubular projection which narrows distally to a very minute claw. In some specimens an obscure division can be detected. *Spiracles* large, much the same in diameter as the length of the antennae. *Stigmatic clefts* not apparent; stigmatic spines 11 to 17 in number arranged in a series running in towards the spiracles. The terminal spine is much the longest (70–90μ) being from two to three times the length of the remainder, the other spines are more or less uniform in length but tend to get a little shorter the further they are away from the terminal spine. These spines are bluntly pointed and usually conspicuously swollen at the base. The terminal spine is not so swollen but gradually tapers to a rounded tip. Marginal setae arranged in a very irregular row and at wide intervals; they are small, sharply pointed and not swollen at the base, and about $\frac{2}{3}$ the length of the short stigmatic

spines. *Anal cleft* short, not more than ⅓ the length of the insect. *Valves* of the anal operculum with the outer edge longer than the base and the outer angle broadly rounded; distal extremities rounded each carrying four minute setae. There is a conspicuous club-shaped chitinised area on either side of the valves which extends from the outer angle to approximately the distal extremity of the valves. The two internal sclerotic processes are very well developed and resemble a smaller pair of anal valves. Anal ring with 8 setae. The ventral lip of the eversile sac carries four stout setae. *Dermal cells* large, crowded and of irregular rounded form. Dorsal dermis covered with numerous minute pores more or less evenly spaced, also with a few spines of the marginal type scattered at wide intervals; the latter are rather more numerous in the abdominal region and more particularly in the vicinity of the anal operculum. *Ventral dermis* with numerous multilocular pores around the anal valves and on the abdominal segments. In the case of the latter they appear to be roughly arranged in broad transverse bands which extend from the median line to a point midway between the median line and the margin. The dermis is not chitinised.

From four to six submarginal tubercles of medium size occur on either side.

On *Bauhinia macrantha* (Leguminosae), Sinoia, 15.xii.27; *Bauhinia* sp., Dunphaile, 26.iii.28 and on *Bauhinia* sp., Lomagundi, August 1927, ex coll. Department of Agriculture, Salisbury, No. 1770.

This is a common species on the numerous species of *Bauhinia* which are to be found in the Sinoia district (Lomagundi). It has very distinctive characteristics and appears to be referable to the genus *Toumeyella*, Ckll., where it has been placed provisionally.

The specimen selected as " type " is a young adult female.

Inglisia geranii, Brain.

Brain, 1920, Cocc. South Africa, Bull. ent. Res., **11** : 37.

On *Geranium* sp. (Geraniaceae), Bulawayo, November 1932, coll. A. Cuthbertson.

This material agrees perfectly with authentic specimens from South Africa with which it has been compared.

In transmitting the material Mr. Cuthbertson wrote " only the Ivy leaved and Bush varieties suffer badly, *Pelargonium* seems to be resistant. The plants are infested on the stems close to soil level or where the stems touch the soil. Severely attacked plants lose their leaves and have a withered dwarf appearance."

The owner of the Nursery in which the infested plants were found stated that he first saw it in the Union of South Africa over fifteen years ago and has known it in Rhodesia for six years. This is the first occasion that it has been collected in this Colony.

Inglisia **grevilleae,** sp. n. (Fig. 7.)

Adult female more or less circular in outline, highly convex with a deep median longitudinal furrow. The two halves of the glassy test are produced upwards and outwards, they are strongly divergent and taper to a truncated extremity. The flattened extremities with numerous semitransparent pale brown crystalline bluntly pyramidical outgrowths; these are often wanting in old specimens. Inner surface of the valves finely striated in a transverse direction and also with fine striations running from the flattened apex to the median furrow. Outer faces of the valves with concentric striations running parallel to the margin. Margin set with flattened obscurely conical outgrowths which are deflected upwards and lie in more or less close apposition with the test; these are often wanting in older specimens.

Denuded of its glassy test, the insect is a shiny semitransparent reddish-brown.

Diameter of adult female 2–2·5 mm.

Antennae of the adult female relatively small and usually of six segments. The 3rd segment is much the longest, longer than the 4th, 5th and 6th put together. With the exception of the 3rd the remaining segments are subequal in length. In some instances the

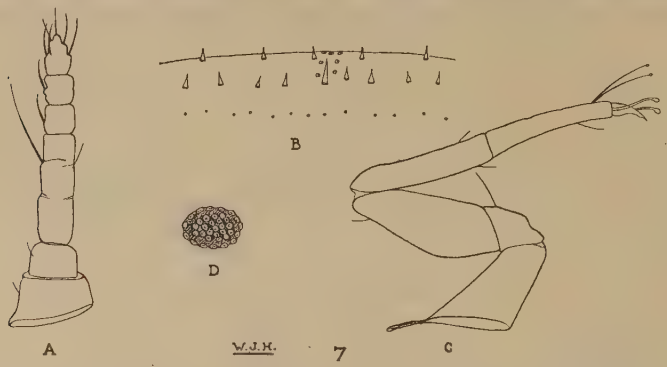


Fig. 7.—*Inglisia grevilleae*, sp. n.: Adult ♀. A, antenna, × 228; B, stigmatic cleft and portion of margin, × 115; C, leg, × 228; D, medio-dorsal pore group, × 228.

3rd segment shows partial subdivision into three segments giving an eight-segmented antenna. In such cases the 3rd is still slightly the longest segment of the antenna. *Legs* relatively small, the tibiae and femora are subequal, with the tarsi very slightly shorter. Foot with the usual digitules the unguals being only very little stouter than the tarsal pair. The claw with a distinct denticule on its inner edge. *Margin* with a double series of spines. The spines are short (18μ) sharply pointed and stout. In both series they are irregularly spaced but they are more numerous in the dorsal series. Stigmatic clefts wanting but usually marked by a single stigmatic spine which is nearly twice the length of the marginal spines and not so markedly broadened at the base. *Dorsal dermis* with a median longitudinal series of compact groups of circular pores. These groups are of irregular shape and size but usually circular or oval; they are highly chitinised even in the early adult female before general chitinisation of the dermis has set in. In the median longitudinal region of the dorsal dermis there is also a strip of more or less evenly distributed circular pores of a much smaller size. This series is continued as a single line of pores right round the margin just within the dorsal series of marginal spines. In older specimens these pores become highly chitinised and are more obvious. Similar pores may be found scattered over the ventral dermis; they are associated with small cylindrical ducts. The *dermis* in the old adult female becomes very highly chitinised. *Valves* of the anal operculum of the usual form. The exact shape of these is difficult to determine as in the earliest adult females the surrounding tissues are strongly chitinised.

On *Grevillea robusta* (Proteaceae), Bulawayo, 20.x.28.

The "type" selected for this species is an early adult female on account of the chitinisation of the tissues that sets in later.

Howardia biclavis, Comst.

Chionaspis ?biclavis, Comstock, 1883, 2nd Rept. Dept. Agric. Cornell Univ., p. 98.
Chionaspis biclavis, Green, 1899, Coccidae of Ceylon, **2** : 152.
,, ,, Newstead, 1901, Mon. Brit. Cocc., **1** : 190.
Howardia biclavis, Brain, 1919, Cocc. South Africa, Bull. ent. Res., **9** : 219.

On a plant belonging to the Celastraceae, Sinoia, 18.x.32.

Rhodesian examples are typical of this widely distributed species.

VIER NEUE ALTWELTLICHE LIMACODIDEN (LEP.)

Von Prof. Dr. Martin Hering.

(*Zoologisches Staatsmuseum, Berlin.*)

Spatulifimbria **grisea,** sp. n.

Im Gegensatz zu *S. castaneiceps,* Hmps., sind hier beide Geschlechter in Flügelschnitt und Färbung übereinstimmend. Körper und Flügel sehr hell ockergelblichgrau, zuweilen mehr rein grau. Die undeutlichen Zeichnungen bestehen im Vorderflügel in 2 schwarzen, nach aussen gebogenen Querlinien, von denen die eine in der Mitte des Vorderrandes beginnt und, nach aussen gebogen, zum Innenrand vor dem Tornus verläuft; die andere beginnt bei ¾ des Vorderrandes und ist stärker nach aussen gebogen; nach dem Innenrand konvergiert sie etwas mit der ersten Linie, sie geht zum Tornus. Meist ist nur die vordere Hälfte der zweiten Querlinie deutlich sichtbar. Die Hinterflügel sind etwas dunkler grau als die Vorderflügel, der Körper ist ebenfalls grau, auch beim ♂. Die Hinterschenkel und Schienen sind mit dicken, dunkelgrauen Haaren dicht besetzt. Grösse wie bei der verglichenen Art.

♂-, ♀-Type von Travancore: Mount Estate, vi.1934 (*S. Ananda Rau*) (British Museum).

Bei Trichinopoly fliegt *S. castaneiceps insolita,* Her., deren ♀ aber ockergelb, wie die Nominatunterart, gefärbt ist.

Parasa **chlorophila,** sp. n.

Die neue Art steht am nächsten *P. catori,* B.-B., unterscheidet sich von ihr sogleich dadurch, dass das braune Wurzelfeld der Vorderflügel den Vorderrand nicht erreicht, dieser bleibt vielmehr bis zum Vorderrand der Mittelzelle grün. Vorderflügel grün, mit einem braunen Wurzelfeld, das in der Zelle bis zu deren Mitte reicht, unterhalb von ihr etwas wurzelwärts zurückgezogen erscheint. Seine distale Begrenzung bildet in und unterhalb der Zelle je einen nach aussen konvexen Bogen. Das Saumfeld ist ebenfalls rotbraun, regelmässiger als bei der verglichenen Art, in den vorderen ⅔ gleichmässig und wenig wurzelwärts konkav, am Vorderrand etwas weiter wurzelwärts ausgedehnt, unterhalb Ader 3 weniger vorspringend, die 3 Zähne weniger scharf als bei *P. catori,* B.-B. Hinterflügel und Unterseite rotbraun. Körper unten dunkel rotbraun, oben der Kopf und Thorax apfelgrün, Hinterleib hell rotbraun. Vorderflügellänge 11 mm.

♀-Type von Sierra Leone: Njala, ix.1933, vii.1934 (*E. Hargreaves*) (British Museum).

Alunus, gen. n.

Basalhälfte der Fühler beim ♂ doppelt gekämmt, die Endhälfte nackt. Palpen kurz, kaum die Augen überragend, vorgestreckt. Beine dicht behaart, Hinterschienen mit 2 Spornpaaren. Im Vorderflügel Ader 2–5 in etwa gleichen Abständen aus der hinteren Zellecke entspringend, 6 weit vom Stiel 7–10 entfernt entspringend, 7–10 in der Reihenfolge 10, 7, 8 + 9 gestielt, 11 in einiger Entfernung vom Zellende entspringend, nur schwach, nicht an 12 herangebogen. Im Hinterflügel die Hinterecke der Zelle schwach vorspringend, 2–5 in etwa gleichen Abständen um sie entspringend, 6 und 7 weit getrennt entspringend, 8 mit der Mitte des Zellvorderrandes durch eine Querader verbunden, gegen den Vorderrand einige überzählige Aderästchen entsendend.

Genotype: *A. amatus,* sp. n.

Alunus amatus, sp. n.

Die neue Art ist habituell etwas *Miresa gilba,* Krsch., ähnlich. Körper ockergelb, unten mehr bleichgelb. Tegulae mit purpursilbernen und weisslichen Schuppen bestreut,

ebenso die Schuppenschöpfe auf der Mitte und am Ende des Thorax. Vorderflügel weisslich ockerfarben, die Grundfarbe aber nur an Vorderrand, Apex und Vorderteil des Aussenrandes hervortretend, sonst durch die Zeichnungen verdeckt. Am Vorderrand steht nahe der Wurzel ein dunkelbrauner Fleck; bei ¼ des Flügels eine Querreihe rotbrauner Flecke, die nach aussen gebogen ist und die aussen dunkler gerandet sind. Von diesen 5 Flecken sind die dem Innenrand benachbarten am grössten. Es folgen 5 grade und parallele purpursilberne Querlinien, deren rotbraune Unterlagerung mehr oder weniger sichtbar ist, der vierte ist am Innenrande besonders breit rotbraun. Saumwärts davon ein weiterer brauner, grader Querstreifen und noch eine purpursilberne Querlinie. Hinterflügel bleich ockergelb, mit bräunlichen Adern. Unterseite bleich ockergelb, Vorderflügel in der Mitte des Vorderrandes purpurbraun. Vorderflügellänge 10 mm.

♂-Type von Sierra Leone: Njala, v.1934 (*E. Hargreaves*) (British Museum).

Thosea **phaeobasis,** sp. n.

Die Art steht sehr nahe der *Th. tripartita*, Moore, von der ich ein Mooresches Stück aus der Sammlung Atkinson vergleichen konnte. Die Färbung der neuen Art ist aber viel dunkler braun, besonders das Wurzelfeld, dessen Helligkeit bei der Art von Moore sehr schwanken kann. Die äussere Querlinie ist bei den vorliegenden beiden Männchen kaum sichtbar, man kann aber feststellen, dass sie oberhalb des Tornus in den Aussenrand mündet, während sie bei *T. tripartita*, Moore in den Tornus selbst hineinzieht. Der Aussenrand der Vorderflügel ist mehr schräg und weniger konvex als bei der verglichenen Art. Der dunkle Mittelpunkt ist bei beiden Arten gleich undeutlich. Die Hinterflügel sind dunkelgrau, dunkler, als sie jemals bei *tripartita* vorkommen können, auch die Unterseite beider Flügel ist dunkelgrau. Im übrigen stimmen beide Arten in Grösse und Habitus überein, namentlich auch in der kennzeichnenden Form des Wurzelfeldes der Vorderflügel.

♂-Type von S. Mangalore, 400, Madras, 22.v.1930 (*J. C. M. Gardner*). Type im British Museum.

THREE NEW APHIDS OF THE GENUS *THORACAPHIS*, VAN DER GOOT (HEM.)

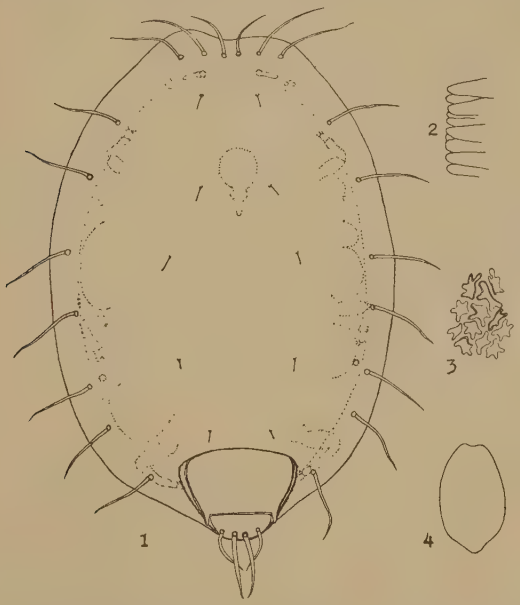
By Ryoichi Takahashi.

(*Department of Agriculture, Research Institute, Formosa.*)

Thoracaphis **piyananensis,** sp. n.

Wingless viviparous ♀. Pale brown in dried specimens, longitudinally black on the median area of cephalothorax except on the carina, with no secretions evident; setae pale brown. Body broadest about the middle or on the posterior part of thorax, about 1·5 times as long as wide, not strongly chitinised, flattened, widely indented on the front margin, a little constricted at the hind end, with a distinct, but very narrow, rounded longitudinal carina on the cephalothorax, which reaches the hind end of thorax, but not the front. Dorsum elevated on the margin, with numerous very small distinct mosaic-like sculptures densely over the whole surface except on the narrow marginal area, and many thin lines running mesad from the margin. Margin of body with many minute rounded irregular teeth in a row as in some aleyrodids. Head and thorax fused together; cephalothorax occupying most of the body, with no traces of segmentation, with 5 pairs of rather long, slightly or scarcely capitate, setae on the median area of dorsum; and 20 very long stout bristles arranged in a single row along the margin, which are subequal in length, a

little curved, and 6 of them are in a transverse row on the front, of which the median 2 are eminently diverging and a little shorter. Abdomen very small, well defined from the thorax, scarcely protruding; the basal 7 segments fused together, wider than long, distinctly produced posteriorly at the hind angle; the 8th segment defined, rounded on the hind margin, with 2 pairs of long stout setae near the hind margin, the anterior pair eminently curved, the posterior pair larger, a little curved. Venter with the marginal area well defined, with some large irregular rounded swellings. Antennae on the venter, very short, but rather slender, indistinctly 3-jointed, the 3rd joint longer than wide, with no setae and sensoria evident. Eyes of 3 small facets, on the venter, separated from the body margin, often hardly discernible. Rostrum small. Thoracic spiracles not protruding, abdominal spiracles absent. Legs very short, concealed under the body; hind tibiae lacking setae, about 4·4 times as long as wide, a little dilated towards the distal end; hind tarsi short, longer than wide, not segmented, with 2 small claws and 2 long somewhat capitate thin setae at the tip. Cornicles wanting. Cauda small, constricted, the knobbed part much wider than long. Anal plate small, bilobed; the lobes wider than long, rounded, a little narrower than the cauda, with some very long thin setae.



Thoracaphis piyananensis, sp. n., wingless viviparous ♀; 1. body; 2. margin of body; 3. dorsal sculptures; 4. outline of an individual.

Length of body, about 1·4 mm.; antenna, about 0·055 mm.; abdomen, about 0·185 mm.; hind tibia, about 0·101 mm.; hind tarsus, about 0·027 mm.; width of ventral marginal area, about 0·078 mm.

Host-plant. *Quercus morii*, attacking the lower side of leaf along the ribs.

Formosa: Piyanan-ambu; some specimens were taken by me, 12.viii.1934. This species differs from other species of the genus in the dorsal sculptures and the presence of distinct teeth on the body margin.

Thoracaphis saramaoensis, sp. n.

Wingless viviparous ♀. Black, strongly chitinised, hardly becoming transparent when treated with potash, with white waxy secretions on the median area of the dorsum, a pair of long horn-like pale whitish wax at the middle of the anterior part of cephalothorax, and a wide very thin whitish secretion behind the hind end; hind legs pale brown, but yellow in specimens mounted in balsam. Body elongate, broadest about the middle, about 1·7 times as long as wide, flattened, widely indented on the front margin, resembling *Thoracaphis setigerus*, Takah., in outline. Dorsum elevated on the marginal narrow area. Head and thorax fused together, with no traces of segmentation; cephalothorax occupying most of the body, produced posteriorly at the hind angle, reaching the middle of the basal fused part of abdomen, smooth on the dorsum, lacking sculptures and setae, with a pair of rather large indistinct oval pores at the middle part between the eyes, and a very shallow, but very wide, longitudinal rounded median ridge; the ridge reaching the hind end of cephalothorax, but not the front margin, narrowly thickened on the hind end, becoming paler than other parts of body when treated with potash, with 3 constrictions and transverse furrows; 6 minute circular pores present in a row on the marginal area between the eyes. Abdomen reduced in size, well defined from the thorax, with the posterior part protruding out of the cephalothorax; the basal 7 segments fused together, wider than long, produced posteriorly at the hind angle, with some 3 pairs of indistinct very small circular pores; the 8th segment well defined, much smaller than the basal fused part, broadly rounded on the hind margin, striate on the anterior half, with 1 or 2 pairs of stout setae on the anterior part, and 4 thin setae in a transverse row behind the middle. Venter with the marginal area well defined by a distinct furrow. Lateral margins of body with many minute irregular indentations. Antennae very small, concealed under the body, hardly discernible. Eyes small, submarginal, on the venter, of 3 facets. Thoracic spiracles on the venter, not protruding; abdominal spiracles wanting. Legs short, the anterior 2 pairs concealed under the body; hind legs rather large, exposed excepting the basal halves of femora, converging, reaching behind the hind end of body; hind tibiae about 4 times as long as wide, without setae; hind tarsi short, a little longer than wide, not segmented, truncate distally, with 4 small conical spines and 2 long thin slightly capitate setae at the tip. Cornicles absent. Cauda constricted basally, the knobbed part wider than long, broadly rounded on the hind margin, somewhat wider than the lobes of anal plate. Anal plate deeply bilobed, the lobes wider than long, rounded, with long setae.

Length of body, about 0·52 mm.; abdomen, about 0·106 mm.; hind tibia, about 0·069 mm.; hind tarsus, about 0·018 mm.; width of marginal area of venter, about 0·032 mm.

Host-plant. *Quercus variabilis*, attacking the lower side of leaf.

Formosa: Kunugigaoka near Saramao (altitude about 2061 m.); many specimens were taken by me, 12.viii.1934.

Among the known species of the genus *T. distyliifoliae*, Takah., is most related to this new species, but differs from the latter in the following characters: (Aleyrodiform female) (1) Body smaller, but much wider, measuring about 0·46 mm. in length, about 0·34 mm. in width. (2) Legs black. (3) Dorsum with many large, but very short, papillae on the cephalothorax except on the median area, which are mostly polygonal, with rounded corners when seen from above. (4) Hind tarsi faintly 2-jointed, the distal joint much smaller than the basal, with 2 rather short slightly capitate setae and 1 or 2 minute conical processes at the tip, etc. The genus *Thoracaphis* now includes many diversified forms and the genus ought to be broken up, but this must be postponed until the summer form or aleyrodiform female of *Nipponaphis distylii*, Pergande (genotype of *Nipponaphis*), becomes known.

Thoracaphis fici, Takahashi, var. **foveolatae**, var. n.

Wingless viviparous ♀. Black, strongly chitinised, hardly becoming transparent when treated with potash, with no evident secretions; antennae and legs black; cauda and anal plate dusky. Body oval, a little narrowed posteriorly, about 1·6 times as long as wide, rounded on the front, flattened on the dorsum, with the margin of dorsum a little elevated in dried specimens. Dorsum distinctly reticulated on the cephalothorax, but indistinctly so or corrugated on the abdomen. Cephalothorax very large, occupying most of body, without traces of segmentation, produced posteriorly at the hind angle, not reticulated on the produced part of hind angle, with 5 pairs of minute setae on the median part of dorsum, and 20 very long eminently curved bristles in a row along the whole free margin; the bristles often flattened, stout, dilated at the tip. Abdomen much reduced in size, well defined from the thorax, not protruding posteriorly; the basal 7 segments fused together, this fused part about 2·7 times as wide as long, produced posteriorly at the hind angle, with 6 minute setae in a row along each lateral margin; the 8th segment well defined, broadly rounded on the hind margin, shorter than the basal fused part, with a pair of long stout setae and a pair of minute setae on the dorsum, these setae arranged nearly in a transverse row behind the middle, the stout ones being median. Antennae very short, on the front margin of body and visible from above, stout, longer than wide, a little tapering on the distal part, directed laterally, rounded apically, not distinctly segmented, with a long seta near the tip, without sensoria discernible. Eyes of 3 facets, submarginal; the facets far separated from each other. Legs short, the anterior 2 pairs concealed under the body; hind legs exposed excepting the bases of femora and distal parts of tibiae; hind tarsi short, 2-jointed, the distal joint small, with 2 long thin capitate setae and 2 claws. Cornicles wanting. Cauda a little constricted basally, the knobbed part broadly rounded on the hind margin, wider than long. Anal plate deeply bilobed, the lobes wider than long, rounded, slightly narrower than the cauda, with long bristles.

Length of body, about 0·52 mm.; antenna, about 0·037 mm.; abdomen, about 0·093 mm.; hind tibia, about 0·065 mm.

Host-plant. *Ficus foveolata*, attacking the lower side of leaf.

Formosa: Rarasan (altitude about 1940 m.), near Urai; Marikowan (altitude about 1939 m.), in Taichu Prefecture; Kussha (altitude about 1575 m.), near Taiheizan.

Described from specimens taken by me in August 1934 at Kussha. Very common on the host in the mountainous regions, but not found in the lowlands, though the host-plant grows in the latter too. Differs from the typical form in that the body is smaller and narrower, and the antennae a little shorter. The typical form is very common on *Ficus retusa* and *F. wightiana* in the lowlands, but is not found on *Ficus foveolata* and in the mountainous districts.

The type specimens are in the collection of the Department of Agriculture, Government Research Institute, Formosa.

A CORRECTION TO MY PAPER ENTITLED "CERATOPOGONIDAE (DIPT.) FROM THE RIVER AMAZON"

By J. W. S. Macfie.

My attention has been drawn to the fact that by an unfortunate error the specimens stated in my paper to have been collected on the River Amazon, were in fact taken on the coast of Brazil, Tutoia being near Parnahyba, State of Piauhi. I therefore take this early opportunity of correcting this error in locality.

NEUE STAPHYLINIDEN (COL.) AUS SÜDAMERIKA *

Dr. Max Bernhauer.

(*Off. Notar in Horn, Nieder Oesterreich.*)

Bei den folgenden Arten befinden sich die typischen Stücke in der Sammlung des British Museum und in meiner eigenen.

Somoleptus **pulcher,** sp. n.

Von der Färbung des *S. laevis,* Sharp, aber fast doppelt so gross, robuster und in folgenden weiteren Punkten verschieden :

Der Kopf ist weniger lang und breiter, etwas weniger spärlich punktiert. Der Halsschild ist breiter und beträchtlich kürzer, nur um die Hälfte länger als breit, etwas stärker und weniger spärlich punktiert. Die Flügeldecken sind deutlich länger, nur mässig kürzer als der Halsschild, an der Wurzel nicht heller. Im ubrigen sind die beiden Arten einander sehr ähnlich (*S. laevis* ist über Argentinien weit verbreitet). Länge : 5·2 mm.

Brasilien : Rio de Janeiro, ex coll. Sharp.

Philonthus **cyaneoaureus,** sp. n.

In die Nähe des *P. godmani,* Sharp, zu stellen, durch die Färbung von allen Verwandten zu unterscheiden.

Tiefschwarz, die Flügeldecken lebhaft purpurgoldig, an der Wurzel breit violettblau, zwischen beiden Farbungen mit einem schmalen hellgrünen Streifen. Der Kopf ist wenig schmäler als der Halsschild, etwas länger als breit, rundlich, nach hinten schwach verengt, zwischen den Fühlerwurzeln breit eingedrückt und lang gefurcht, zwischen den Augen mit vier, einander paarweise genäherten starken Punkten, auf der hinteren Hälfte grob und weitläufig punktiert. Die Schläfen sind beträchtlich länger als der Längsdurchmesser der Augen. Die Fühler sind mässig lang, die vorletzten Glieder deutlich breiter als lang. Der Halsschild ist viel schmäler als die Flügeldecken, um ein Viertel länger als breit, ziemlich gleichbreit, nach rückwarts unmerklich verengt, mit stumpf verrundeten Hinterecken, in den Dorsalreihen mit fünf, bisweilen vier starken Punkten, seitlich mit wenigen weiteren, feineren Punkten. Die Flügeldecken sind beträchtlich länger als der Halsschild, nach rückwärts erweitert, fein und spärlich punktiert. Der Hinterleib stark glänzend, nur mit spärlichen feinen Punkten besetzt. Erstes Glied der Hintertarsen fast kürzer als das Endglied. Länge : 7 mm.

Venezuela, ohne nähere Fundortangabe, ex coll. Sharp.

Belonuchus **bipunctatus,** sp. n.

Ganz vom Habitus und der Färbung des *B. haemorrhoidalis,* F., auf den ersten Blick durch die zweipunktigen Dorsalreihen des Halsschildes, sowie durch folgende weitere Punkte zu unterscheiden.

Der Kopf ist hinter den Augen mit zahlreicheren groben Punkten besetzt, nach rückwärts kaum oder nur unmerklich erweitert. Die Punktierung der Flügeldecken ist deutlich dichter, auch der Hinterleib ist dichter punktiert. Im Übrigen ist die Ähnlichkeit eine sehr grosse. Die Fühler sind entschieden schlanker, die vorletzten Glieder nur wenig breiter als lang, die beiden letzten Glieder dunkel gelbrot. Länge : 11–12 mm.

Kolumbien : ohne nähere Fundortangabe, ex coll. Sharp; Cali (Villa Elvira, 1800 m., 3.vii.1908, *Fassl*).

Belonuchus **piceolus,** sp. n.

Von *Belonuchus viridipennis,* Baudi, mit dem er nahe verwandt ist, durch grössere, robustere Gestalt, die Färbung und folgende weitere Merkmale leicht zu trennen :

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* 36. *Beitrag zur südamerikanischen Staphylinidenfauna.*

Der Kopf ist weniger kurz, stärker und zahlreicher punktiert, die Fühler sind, wie die Taster, hell rotgelb, der Halsschild ist kürzer und breiter, nach hinten weniger verengt, die Punktierung viel stärker. Die Flügeldecken zeigen nur ganz geringen, kaum merklichen Metallglanz, die Punktierung ist kaum verschieden. Die Beine sind nicht schwarz, sondern lebhaft rötlichgelb. Länge: 7 mm. (bei eingezogenem Hinterleib).

BRASILIEN: ohne nähere Fundortangabe (*Bowring*).

Belonuchus **gowdeyi,** sp. n.

Unter den kleinen Arten mit bestachelten Hinterbeinen, durch die kurze breite Gestalt und die Färbung leicht kenntlich.

Schwarz, Kopf, Halsschild und Flügeldecken blauschwarz, die Taster und Beine pechbraun, die Fühler pechschwarz. Der Kopf ist breiter als der Halsschild, fast um die Hälfte breiter als lang, nach rückwärts etwas verengt, vorn mit tiefer, langer Mittelfurche, zwischen den Augen mit vier, neben und namentlich hinter den Augen mit zahlreichen kräftigen Punkten. Die Augen sind gross, ihr von oben sichtbarer Längsdurchmesser wenig kürzer als die Schläfen. Die Fühler sind ziemlich kurz, gegen die Spitze verdickt, die vorletzten Glieder fast um die Hälfte breiter als lang, das etwas hellere Endglied so lang als die beiden vorhergehenden zusammengenommen. Der Halsschild ist bedeutend schmäler als die Flügeldecken, wenig länger als breit, nach hinten geradlinig, ziemlich stark verengt, in den Rückenreihen mit fünf kräftigen Punkten, seitlich mit einigen, weiteren schwächeren Punkten. Die Flügeldecken sind wenig länger als der Halsschild, etwas kürzer als zusammen breit, mässig stark und mässig dicht punktiert. Der Hinterleib ist fein und weitläufig punktiert, sowie die Flügeldecken gelblich grau behaart. Länge: 7·5 mm.

JAMAICA: Hope Gardens, 15.ix.1925 (*C. C. Gowdey*).

Belonuchus (*Musicoderus*) **ecuadorensis,** sp. n.

Dem *B. convexus*, Bernh., am nächsten stehend, durch fünf-punktige Dorsalreihen des Halsschildes und beträchtlich weitläufigere Punktierung der Flügeldecken von ihm leicht zu unterscheiden.

Tiefschwarz, glänzend, die Taster, Beine und Fühler pechfarben, die fünf letzten Fühlerglieder wie bei *convexus* weissgelb. Der Kopf beim ♂ beträchtlich, beim ♀ wenig breiter als der Halsschild, quer nach rückwärts verengt, vorn in der Mitte stark eingedrückt und scharf gefurcht. Die Punktierung ist ähnlich wie bei *convexus*, jedoch etwas stärker und zahlreicher. Die vorletzten Fühlerglieder sind viel länger als breit. Der Halsschild ist etwas länger und schmäler, in den Dorsalreihen mit fünf kräftigen Punkten. Die Flügeldecken sind ähnlich uneben wie bei *convexus*, um die Hälfte weitläufiger punktiert. Länge: 11–11·5 mm.

ECUADOR: ohne näheren Fundort.

Phanolinus **bolivianus,** sp. n.

Infolge der spärlichen Punktierung der Flügeldecken mit *magnificus*, Bernh. nahe verwandt und durch ganz andere Färbung, vor dem Hinterrande nicht chagrinierten Kopf und noch weitläufiger punktierte Flügeldecken zu unterscheiden.

Kopf und Halsschild sind purpurfarbig mit grünlichem Schimmer, die Flügeldecken sind goldgrün, oft mit Purpurglanz, der Hinterleib ist purpurglänzend mit grünlichem Schimmer an der Basis, die Basalhalfte der schwarzlichen Fühler, die Taster und Beine schwarz mit starkem grünlichen Metallglanz, die Brust purpurglänzend. Der Kopf ist fast schmäler als der Halsschild, weniger kurz, nach rückwärts weniger verengt, die Schläfen länger, um ein gutes Stück länger als der Längsdurchmesser der weniger vorstehenden Augen, während sie bei *magnificus* kaum länger als der Augendurchmesser sind. Die bei *magnificus* deutliche Chagrinierung auf der hinteren Partie des Scheitels sowie bisweilen auch vorn neben den

Augen fehlt bei der neuen Art gänzlich. Der Halsschild ist beträchtlich stärker punktiert, die Punktierung auf den Flügeldecken ist noch weitläufiger. Länge: 12–17 mm.

Bolivien: ohne näheren Fundort, ex coll. Sharp.

Quedius **edwardsi,** sp. n.

Eine durch die prächtige Färbung und die langgestreckte Körpergestalt sehr ausgezeichnete Art.

Schwarz, der Kopf und Halsschild mit grünlichem Erzschimmer, alle Ränder des Halsschildes blassgelb gesäumt, die Flügeldecken lebhaft metallischgrün mit Purpurglanz, die Epipleuren, die Seiten- und Hinterränder der Hinterleibsringe, die Taster und Beine blass gelb, die Spitze der Taster gebräunt, die Fühler schmutzig gelb mit hellerer Wurzel. Der Kopf beträchtlich schmäler als der Halsschild, viel länger als breit, nach rückwärts stark geradlinig verengt mit flach verrundeten Hinterecken, ausser dem grossen Scheitelpunkt nur mit einigen feinen Punkten hinter den Augen. Diese sind zwar gross, die Schläfen hinter ihnen jedoch viel länger als der sichtbare Längsdurchmesser. Die Fühler sind sehr langgestreckt, zurückgelegt bis zum Hinterrand des Halsschildes reichend, alle Glieder mindestens doppelt so lang als breit. Der Halsschild ist viel schmäler als die Flügeldecken, beträchtlich länger als breit, nach rückwärts gerundet erweitert, neben dem Seitenrand breit niedergedrückt, vor der Mitte mit vier in einem länglichen Rechteck gestellten flachen Punkten, hinter der Mitte neben dem Seitenrand mit einer flachen Grube. Die Flügeldecken sind um die Hälfte länger als der Halsschild, nach rückwärts erweitert, sehr fein und weitläufig, oberflächlich punktiert, im Grunde äusserst fein gerunzelt, wenig glänzend. Der Hinterleib ist nach rückwärts verengt, auf dem dritten bis fünften Tergit neben dem Seitenrand mit je einem breiten Grübchen, welche miteinander durch eine Furche verbunden sind. Die Beine sind lang und schlank. Länge: 7·5 mm.

Süd-Chile: Llanquihue Prov. (Casa Pangue), 1–10.xii.1926 (*F.* & *M. Edwards*).

Tachinus **grandipennis,** sp. n.

Durch die überlangen Flügeldecken und die spärliche Skulptur sehr ausgezeichnet.

Pechbraun, die Seiten- und Hinterränder des Halsschildes, der Hinterrand der Flügeldecken, die Hinterränder der Hinterleibsringer und die Wurzel der hellrostfärbigen Fühler rötlichgelb, die Beine hell bräunlichrot mit geschwärzten Schienen. Der Kopf schmäler als der halbe Halsschild, die Fühler sehr gestreckt, weit über den Hinterrand des Halsschildes reichend, nach vorn stark und ziemlich gerundet verengt, mit scharfen, ziemlich rechteckigen Hinterwinkeln, ausser wenigen Randpunkten unpunktiert, spiegelblank. Die Flügeldecken fast doppelt so lang als der Halsschild, gleichbreit, fast um die Hälfte länger als zusammen breit, glänzend, mit einer Schulterreihe von feinen, weitläufigen Punkten, sonst sehr sparlich mit äusserst feinen, sehr flachen und schwer sichtbaren Pünktchen besetzt und stellenweise äusserst fein gerunzelt. Der Hinterleib ist fein, aber deutlich und ziemlich weitläufig, hinten sehr spärlich punktiert. Länge: 6 mm.

Beim ♂ ist das sechste Sternit breit und tief dreieckig ausgeschnitten, das fünfte kaum merklich ausgerandet, neben der Mitte am Hinterrande jederseits mit einer grösseren Anzahl von goldrötlichen dicken Borsten dicht kammförmig besetzt.

S. Chile: Prov. Llanquihue (Casa Pangue), 1–10.xii.1926 (*F.* & *M. Edwards*).

Übersicht über die bisher aus Brasilien bekanntgewordenen *Hoplandria*-Arten.

1. Kopf sehr fein und spärlich punktiert . . . . . 2.
   Kopf kräftig oder ziemlich kräftig und mehr oder minder, wenigstens auf der hinter Hälfte, dicht punktiert . . . . . 5.
2. Flügeldecken kaum länger als der Halsschild, dieser mässig fein und ziemlich dicht punktiert . . . . . *aleocharoides*, Bernh.

Flügeldecken beträchtlich länger als der Halsschild, dieser sehr fein punktiert . . . . . 3.
3. Flügeldecken weitläufig punktiert . . . . . *tubericollis*, sp. n.
Flügeldecken ziemlich dicht punktiert . . . . . 4.
4. Hinterleib mit zahlreichen, kräftigen Kielen besetzt . . *janeiroensis*, sp. n.
Hinterleib höchstens am Hinterrand der Tergite mit einzelnen kleinen, länglichen Körnchen besetzt . . . . . *brasiliana*, sp. n.
5. Flügeldecken weitläufig punktiert . . . . . *skalitzkyi*, Bernh.
Flügeldecken dicht punktiert . . . . . 6.
6. Kopf kräftig punktiert . . . . . 7.
Kopf mässig stark punktiert . . . . . 9.
7. Körper gross (über 4·5 mm.), Halsschild ziemlich dicht punktiert *analis*, Bernh.
Körper klein (unter 4 mm.), Halsschild weitläufig punktiert . . . . . 8.
8. ♂ am vierten Tergit mit zwei grossen, breiten Beulen, die Flügeldecken seitlich vor den Hinterecken, kräftig flach erweitert, das siebente Tergit mit einem langen, kräftigen Längskiel . . . . . *tuberiventris*, sp. n.
♂ am vierten Tergit ohne Beulen, die Flügeldecken nicht erweitert, das siebente Tergit nur mit einem kleinen Körnchen vor der Mitte des Hinterrandes . . . . . *impressicollis*, sp. n.
9. Halsschild mässig und mässig dicht punktiert . . . . . *schusteri*, Bernh.
Halsschild sehr fein und ziemlich dicht punktiert . . . *piceobrunnea*, sp. n.

Hoplandria **tubericollis**, sp. n.

Rötlichbraun, glänzend, der Hinterleib rötlich mit dunklerer Spitze, die Wurzel und äusserste Spitze der im Übrigen bräunlichen Fühler und die Beine rötlichgelb.

Der Kopf ist halb so breit als der Halsschild, quer, nach rückwärts ziemlich geradlinig verengt, sehr fein und spärlich punktiert, stark glänzend, die Schläfen kürzer als der von oben sichtbare Längsdurchmesser der grossen vorgequollenen Augen. Die Fühler mässig lang, gegen die Spitze schwach verdickt, das dritte Glied so lang als das zweite, die folgenden nicht, die vorletzten mässig quer, das Endglied länger als die zwei vorhergehenden zusammen. Der Halsschild wenig schmäler als die Flügeldecken, mehr als um die Hälfte breiter als lang, nach vorn gerundet verengt, sehr fein und weitläufig punktiert, stark glänzend, vor der Mitte mit einer Querreihe von vier und hinter der Mitte mit zwei starken Punkten. Flügeldecken beträchtlich länger als der Halsschild, mässig fein und ziemlich weitläufig punktiert, stark glänzend. Der Hinterleib nach rückwärts stark zugespitzt, spiegelglänzend, fast unpunktiert. Länge: 4·2 mm.

Beim ♂ besitzt der Halsschild vor der Basis zwei kräftige Höckerchen, die Flügeldecken sind an der Spitze der jederseits mit einem schrägen, kräftigen scharfspitzigen, etwas nach hinten vorstehenden Zahn bewehrt, die Seiten sind vor der Spitze in einen breiten, langen und flachen dreieckigen Lappen vorgezogen, das vierte Tergit besitzt vor dem Hinterrand zwei grosse, schräge Längsbeulen, das siebente in der Mitte des Hinterrandes einen grossen dreieckigen, scharf spitzigen, senkrecht von der Tergitfläche abstehenden Zahn.

S. Brasilien: Rio de Janeiro (*Squires*), ex coll. Sharp.

Hoplandria **janeiroensis**, sp. n.

Durch die Skulptur des Hinterleibes ausgezeichnet. Rotgelb, die Wurzel und Spitze der Fühler, die Taster und Beine hellgelb. Die Punktierung des Kopfes und Halsschildes ist sehr fein und weitläufig, die der Flügeldecken ziemlich dicht und etwas weniger fein. Der Hinterleib ist wie der ganze Körper glänzend und namentlich auf dem rückwärtigen Teile der Tergite mit kräftigen, langen Kielchen verhältnismässig dicht besetzt. Die Decken sind ungefähr um ein Drittel länger als der Halsschild. Länge: 3 mm.

♂ unbekannt.

S. Brasilien: Rio de Janeiro (*Squires*), ex coll. Sharp.

Hoplandria **brasiliana,** sp. n.

Rostrot, stark glänzend, der Hinterleib etwas dunkler, die Flügeldecken mehr geschwärzt, die Wurzel und Spitze der Fühler, die Taster und Beine rötlichgelb. Der Kopf und Halsschild sehr fein und weitläufig punktiert, der letztere weniger kurz als bei *tubericollis*, hinter der Mitte mit zwei kräftigen, quergestellten Punkten. Die Flügeldecken länger als der Halsschild, mässig fein und ziemlich dicht punktiert. Der Hinterleib geglättet, in den Basalfurchen punktiert und am Hinterrand mit einer Querreihe von kleinen Körnchen. Länge: 4 mm.

Beim ♂ besitzen die Flügeldecken an der Spitze der Naht jederseits ein kleines, scharfes, etwas schräg gestelltes Zähnchen, die Seiten sind einfach. Am siebenten Tergit befindet sich auf der rückwärtigen Hälfte ein langes, kräftiges Kielchen.

S. Brasilien: Rio de Janeiro (*Squires*), ex coll. Sharp.

Hoplandria **tuberiventris,** sp. n.

Von der Färbung der vorherigen Art, jedoch der Hinterleib nicht dunkler. Der Kopf ist ziemlich kräftig und auf der hinteren Hälfte ziemlich dicht punktiert. Der Halsschild um die Hälfte breiter als lang, kräftig und ziemlich weitläufig punktiert, vor der Mitte mit vier, hinter der Mitte mit zwei starken, quergestellten Punkten. Die Flügeldecken sind fast um ein Drittel länger als der Halsschild, mässig stark und ziemlich dicht punktiert. Der Hinterleib geglättet, kaum punktiert, am Hinterrand der Tergiten mit einigen Körnchen. Länge: 3·5 mm.

Beim ♂ besitzen die Flügeldecken an der Spitze der Naht jederseits ein scharfes, schräggestelltes Zähnchen, die Seiten vor den Hinterecken stark, wenn auch schwächer als bei *tubericollis* erweitert, das vierte Tergit besitzt zwei starke, runde, von einander abgerückte Beulen, das siebente ein kräftiges, bis in die Nähe der Basis ziehendes Kielchen.

S. Brasilien: Rio de Janeiro, Dez. 1856 (*H. Clark*), ex coll. Sharp.

Hoplandria **impressicollis,** sp. n.

Mit der vorigen Art nahe verwandt, von ihr in folgenden Punkten verschieden: Der Kopf ist breiter, kräftiger und dichter punktiert. Die Fühler kürzer, die Glieder vom fünften angefangen stark quer. Der Halsschild ist flacher, gegen die Seiten zu ziemlich stark schräg niedergedrückt, jederseits der Mittellinie mit je einer Längsfurche, die Punktierung sehr ähnlich, nur gegen die Seiten etwas weitläufiger und stärker. In der Skulptur der Flügeldecken und des Hinterleibes ist kaum ein wesentlicher Unterschied festzustellen. Dagegen ist die Geschlechtsauszeichnung des ♂ eine wesentlich andere. Die zwei Zähnchen an dem Ende der Naht sind viel kleiner und schwächer, die Seiten der Flügeldecken einfach, nicht nach aussen erweitert, das vierte Tergit besitzt keine beulenartigen Erhabenheiten und das siebente keinen Längskiel sondern nur ein kleines Hockerchen vor der Mitte des Hinterrandes. Länge: 4·2 mm.

S. Brasilien: Rio de Janeiro, ex coll. Sharp.

Hoplandria **piceobrunnea,** sp. n.

Durch die viel dichtere Punktierung von den übrigen brasilianischen Arten abweichend. Pechbraun, wenig glänzend, die Seiten des Halsschildes, die Hinterränder der Hinterleibsringe, die Hinterleibsspitze, die Wurzel der bräunlichen Fühler, die Taster und Beine rötlichgelb. Der Kopf klein, ziemlich kräftig und dicht, vorn feiner und weitläufiger punktiert. Die Fühler mässig kurz, die vorletzten Glieder nur mässig quer. Der Halsschild etwas schmäler als die Flügeldecken, um die Hälfte breiter als lang, gleichmässig und ziemlich stark gewölbt, fein und dicht punktiert und dicht gelblich behaart, mit geringem Glanze. Die Flügeldecken sind länger als der Halsschild, etwas stärker und ebenso dicht als dieser punktiert, dicht gelblich behaart mit geringem Glanz. Der Hinterleib ist verhältnismässig

dicht punktiert und auf der hinteren Hälfte der Tergite mit zahlreichen langen Kielchen besetzt, das siebente Tergit ist fein und weitläufig gekörnt. Länge: 3·5 mm.

♂ unbekannt.

S. Brasilien: Rio de Janeiro (*Squires*), ex coll. Sharp.

Polylobus **longicornis,** sp. n.

Dem *P. bicolor*, Sol., in der Gestalt ausserordentlich ähnlich, durch andere Färbung und viel spärlichere Punktierung der Flügeldecken, sowie durch viel längeres Endglied der Fühler leicht zu unterscheiden.

Schwarz, glänzend, der Halsschild, die Wurzel der rostbraunen Fühler, die Taster und Beine lebhaft rötlichgelb. Der Kopf ist schmäler als der halbe Halsschild, sehr fein und spärlich punktiert; die Fühler sind gestreckt, gegen die Spitze wenig verdickt, das dritte Glied viel kürzer als das zweite, die folgenden viel länger als breit, die vorletzten bei breitester Ansicht nur sehr wenig breiter als lang, das Endglied ausserordentlich stark entwickelt, langgestreckt, so lang als die drei vorhergehenden zusammen. Der Halsschild etwas schmäler als die Flügeldecken, hochgewölbt, nur wenig breiter als lang, äusserst zart und sehr spärlich punktiert, stark glänzend. Die Flügeldecken etwas länger als der Halsschild, nach rückwärts erweitert, sehr fein und spärlich punktiert. Der Hinterleib nach rückwärts verengt, mässig fein und sehr weitläufig punktiert, wie der übrige Körper stark glänzend. Länge: 5–5·5 mm.

S. Chile: Prov. Llanquihue (Casa Pangue), 4–10.xii.1926 (*F. & M. Edwards*).

Polylobus **arrowi,** sp. n.

Von der nachfolgenden Art, mit welcher sie die gleiche Gestalt besitzt, durch die Färbung sofort zu trennen.

Einfärbig pechschwarz, die ganzen Fühler, Taster und Beine rostgelb, bisweilen die Flügeldecken mit einem wenig helleren schrägen Wisch über die Scheibe. Der Kopf ist etwas breiter, die Schläfen fast kürzer, die Punktierung ist etwas stärker und dichter. Der Halsschild ist etwas dichter punktiert und stärker chagriniert. Auch die Punktierung und Chagrinierung der Flügeldecken ist dichter. Länge: 2·8–3 mm.

Argentinien: Terr. Rio Negro, L. Nahuel Huapi (Puerto Blest), 2–3.xii.1926 (*F. & M. Edwards*).

Polylobus **horni,** sp. n.

Mit *P. arrowi* sehr nahe verwandt ist eine andere Art welche in der Gestalt und Färbung mit ihr ganz übereinstimmend, jedoch durch halb so starke Punktierung des Vorderkörpers, besonders der Flügeldecken auf den ersten Blick zu unterscheiden ist. Länge: 2–2·2 mm.

Chile: ex coll. Solier & Fairmaire.

In der Sammlung des Museums Berlin–Dahlem und in meiner eigenen.

Polylobus **fortepunctatus,** sp. n.

In der Färbung dem *P. netolitzkyi*, Bernh., ähnlich, gewölbter, durch viel schmäleren Kopf, kleinere Augen, schmäleren Halsschild und die grobe Skulptur auf den ersten Blick zu unterscheiden.

Schwarz, mässig glänzend, der Halsschild und die Flügeldecken, die Fühler, Taster und Beine rötlichgelb, eine dreieckige Makel, welche die Basis einnimmt und an der Naht weit nach hinten reicht, schwarz, ein unbestimmter Wisch an der Basis des Halsschildes, welcher meist sich nach vorn fortsetzt, gebräunt. Der Kopf ist kräftig und ziemlich dicht punktiert, mässig glänzend, die unten scharf gerandeten Schläfen sind ungefähr so lang als der Längsdurchmesser der Augen, während sie bei *netolitzkyi* viel kürzer sind. Die Fühler denen der letztgenannten Art sehr ähnlich. Der Halsschild ist, um ein gutes Stück schmäler als die

Flügeldecken, um die Hälfte breiter als lang, an den Seiten stark gerundet, nach vorn mässig verengt, kräftig und ziemlich dicht punktiert, im Grunde äusserst fein chagriniert, wenig glänzend. Die Flügeldecken sind um die Hälfte länger als der Halsschild, kaum länger als zusammenbreit, ähnlich wie der Halsschild skulptiert, wenig glänzend. Der Hinterleib ist glänzender, ziemlich kräftig und weitläufig punktiert. Länge: 3–3·5 mm.

Argentinien: Terr. Rio Negro, L. Nahuel Huapi (Puerto Blest), 2–3.xii.1926 (*F.* & *M. Edwards*).

Polylobus **curticollis,** sp. n.

Durch die Färbung, besonders kurzen Halsschild und die Geschlechtsauszeichnung ausgezeichnet.

Tiefschwarz, glänzend, die Fühler, Taster und Beine gelblich, die Schenkel pechfarben. Der Kopf ist klein, viel schmäler als der halbe Halsschild, äusserst fein und sehr spärlich punktiert, stark glänzend. Die Fühler kurz, die vorletzten Glieder stark quer, das Endglied so lang als die beiden vorherigen zusammen. Der Halsschild fast doppelt so breit als lang, an den Seiten stark gerundet, sehr fein und spärlich punktiert, stark glänzend; die Chagrinierung sehr schwach. Die Flügeldecken um die Hälfte länger als der Halsschild, mässig fein und ziemlich dicht punktiert, äusserst fein chagriniert, aber doch ziemlich glänzend. Der Hinterleib ist sehr fein und weitläufig punktiert, stark glänzend. Länge: 2·5 mm.

Beim ♂ besitzt das achte Tergit in der Mitte der Basis ein kräftiges Hockerchen. Durch diese Auszeichnung muss sich diese Art ausser der Färbung von *P. luctuosus*, Fauv., unterscheiden, welche ebenfalls ein Zähnchen, aber nach Fauvel's Zählung am sechsten, also in unserem Sinne am siebenten Tergit in der Mitte besitzt.

S. Chile: Prov. Llanquihue (Casa Pangue), 1–10.xii.1926 (*F.* & *M. Edwards*).

Polylobus **darwini,** sp. n.

Durch schmälere Gestalt, längeren Halsschild und besonders dichte Punktierung insbesonders auch des Hinterleibes von den übrigen Arten zu unterscheiden.

Pechschwarz, wenig glänzend, die Flügeldecken schmutzig bräunlichgelb, die Hinterränder der Tergite rötlich, die Fühler hell bräunlich, ihre Wurzel, die Taster und Beine rötlichgelb. Der Kopf ist querrundlich, mässig fein und dicht punktiert. Die Augen wenig vorstehend, die unten scharf gerundeten Schläfen fast länger als der von oben sichtbare Längsdurchmesser der Augen. Die Fühler gegen die Spitze etwas verdickt, die vorletzten Glieder stark quer, das Endglied kaum so lang als die beiden vorhergehenden zusammen. Der Halsschild etwas schmäler als die Flügeldecken, fast nur ein Drittel breiter als lang, nach vorn verengt, mässig fein und sehr dicht punktiert und dicht gelblich behaart, ziemlich matt. Die Flügeldecken ungefähr um ein Drittel länger als der Halsschild, ähnlich wie dieser, aber etwas stärker punktiert und behaart, ziemlich matt. Hinterleib nach rückwärts verengt, mässig fein und dicht, hinter weitläufig punktiert. Länge: 2·5 mm.

Chile: Chiloe I. (*C. Darwin*).

Polylobus **mexicanus,** sp. n.

Noch dichter als *P. darwini* besonders am Hinterleib punktiert, jedoch von der Gestalt des *bicolor*, Sol., ist eine mexicanische Art, die sich durch besonders kurze, gewölbte Körpergestalt und sehr feine und dichte punktierung und geringen glanz des Körpers auszeichnet. Der Hinterleib ist stärker als der Vorderkörper und bis zur Spitze gleichmässig sehr dicht punktiert. Die Färbung ist blassgelb, die Spitze der Fühler- und der Hinterleib vor der Spitze, ist etwas angedunkelt. Länge: 2 mm.

Omilteme, Guerrero, 8000 ft. July (*H. H. Smith*). Im British Museum und meiner eigenen Sammlung.

A REMARKABLE NEW AFRICAN MOTH BELONGING TO THE FAMILY SATURNIIDAE

By W. H. T. Tams, F.R.E.S.

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The remarkable moth which forms the subject of this paper was taken at the end of last year at Amani, Tanganyika Territory, by Mrs. Edith Dalton, who has kindly presented the specimen to the British Museum. It apparently belongs to the subfamily Saturniinae, and, as far as I am able to judge, is related to *Argema mimosae*, Boisduval, from which, however, it is generically distinct.

Antistathmoptera, gen. n.

♀. Fore-wing with three radials, veins *R*2 and *R*3 being absent (fig. 3, right fore-wing); veins *M*1 and *M*2 shortly stalked. Hind-wing (fig. 4, left hind-wing) with vein *Rs* from middle of cell, vein *M*1 from before angle, vein *M*2 from angle; discocellulars angled between the two well-marked lobes of the trilobate ocellus. Fore-wing acutely falcate at apex. Hind-wing with the termen sinuate, the anal angle prolonged into a tail, proximally narrow, greatly broadened distally. Both fore- and hind-wings with a trilobate, mainly hyaline, ocellus (fig. 1). Thorax (fig. 2) with a small parasternum. Frons narrowing slightly orad. Palpus three-segmented, as long as the diameter of the eye, the second segment longer than the first and third together (fig. 5). Antenna with 54 segments, including scape, bipectinate to the penultimate segment, the pectinations long, fine, finely ciliate and terminating in a fine seta (fig. 6). Epiphysis of fore tibia small, its length approximately one-ninth that of tibia; fore tarsus with first segment nearly half as long as tibia; fourth segment very short, bilobate, with a short, stout, blunt spine on each lobe distally. Mid tibia and hind tibia each with two short spurs. Claw-segments of tarsi with well-developed pulvillus, narrow proximally, broader distally; lobe of paronychium narrow, broader proximally; empodium present; claw without serration (fig. 7, *a*, *b*, *c*). Genitalia (fig. 8): Sexual orifice opening medially in lightly chitinised membrane beyond the strongly chitinised ring of the ninth segment, with beyond it a strong chitinous spur, grooved ventrally and rounded terminally; two chitinous patches before the anal valves.

Type of genus *A. daltonae*, sp. n.

Antistathmoptera daltonae, sp. n.

♀. Antenna clove brown, shaft ventrally grading over the distal half to honey yellow. Palpus outwardly fuscous streaked with warm buff, inner side warm buff (except third segment). Head warm buff to chamois. Thorax dorsally chamois, the patagia ochre yellow, the tegulae chamois edged with fuscous; pectus warm buff. Abdomen above and beneath warm buff, with dorso- and ventro-lateral series of fuscous spots, the ventro-lateral spots larger. Fore-wing chamois from base to postmedial fascia, with some brownish olive suffusion, lighter in the cell; warm buff beyond the postmedial fascia, the whole wing irregularly speckled with fuscous; costa broadly fuscous from wing-base to middle; antemedial fascia twice-bowed (concavities basad), a small bow in the cell, a larger bow between cell and inner margin; a large, trilobate, hyaline ocellus at end of cell, the largest lobe outside the cell, the whole ocellus surrounded by a fuscous-outlined greyish olive border; a broad, diffuse, fuscous medial shade, deeply bowed (concavity basad) from costa at two-thirds to vein *M*2, then running alongside the postmedial fascia to inner margin at two-thirds; postmedial fascia fuscous, distally edged with warm buff, sharply curved out of falcate wing-apex, then very slightly bowed (concavity terminad) to inner margin at two-thirds; indistinct fuscous shading, narrow from vein *R*5 to vein *M*3, then gradually widening

to inner margin, where it extends from postmedial fascia to tornus; fringe brownish olive. Hind-wing chamois, fuscous-speckled; hyaline ocellus at end of cell, apparently bilobate (actually trilobate), the large lobe divided proximally by the upper part of the discocellular vein, which is sharply angled and cuts off the small lobe, thus forming a trilobate ocellus with two small lobes in the cell and a larger lobe outside, as in the fore-wing; a diffuse

Fig. 1.—*Antistathmoptera daltonae*, gen. et sp. n.

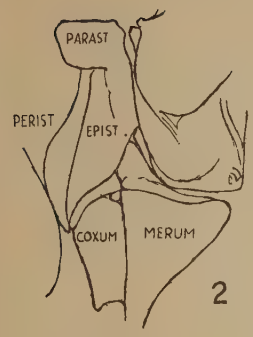
fuscous postmedial fascia from just beyond middle of costa to inner margin at the base of the long tail, very slightly bowed (concavity basad); diffuse fuscous subterminal shading; the narrow part of the long tail shaded with fuscous black; fringe fuscous black. Underside similar in pattern to upperside, warm buff, speckled with fuscous to fuscous black, with brownish olive shading.

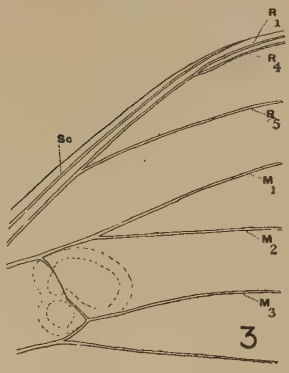
Length of fore-wing: 70 mm.

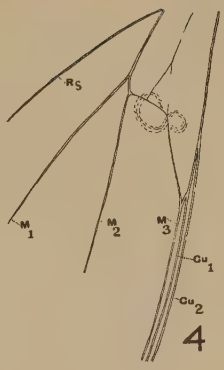
Length of hind-wing from base to apex: 40 mm.

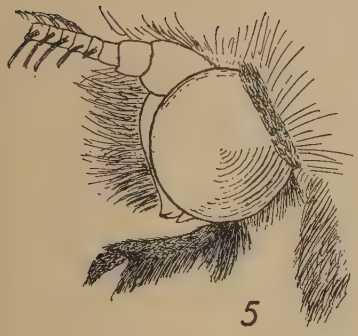
Length of hind-wing from base to extremity of tail: 110 mm.

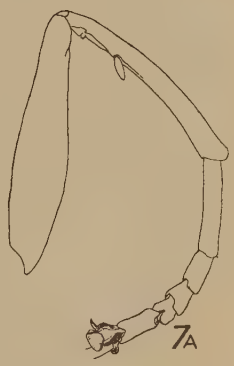
Holotype ♀. Tanganyika Territory: Amani, xii.1934 (Mrs. *Edith Dalton*).

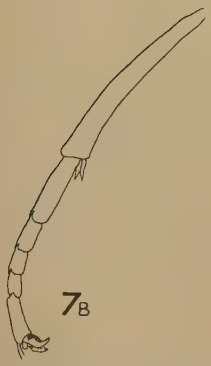


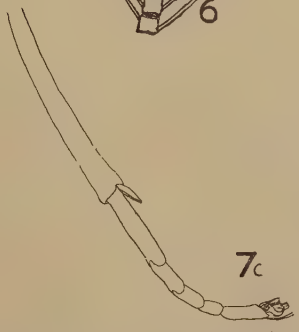


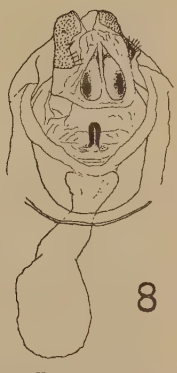












FIGS. 2–8.—*A. daltonae*, sp. n.—2, part of thorax, to show relatively small parasternum; 3, part of fore-wing venation (R); 4, part of hind-wing venation (L); 5, head; 6, antenna, distal half; 7*a*, fore leg, *b*, tibia and tarsus of mid leg, *c*, tibia and tarsus of hind leg; 8, genitalia, ♀.

THE GENUS *POTANTHUS*, SCUDDER (LEP., HESPERIIDAE)

By Brigadier W. H. Evans, C.S.I., C.I.E., D.S.O., F.R.E.S.

Scudder in 1872 (*4th Ann. Rep. Peabody Acad. Sci.* : 75) introduced the name *Potanthus* for a genus, citing as the genotype *Hesperia omaha* described by Edwards in 1863 (*Proc. ent. Soc. Philad.*, **2** : 21) from Colorado. He placed as a synonym of *omaha*, *Hesperia mingo* described by Edwards in 1866 (*Proc. ent. Soc. Philad.*, **6** : 207) from Virginia. He then described a second species in the genus under the name *californica* from California.

Holland in 1900 (*Novit. Zool.*, **7** : 85) said that the type of *mingo* was in his collection, and he considered it to be the same species as *Pamphila maesoides*, Butler 1877 (*Trans. linn. Soc.* (2) **1** : 555), described from Malacca. Dyar in 1902 (*Bull. U.S. nat. Mus.*, **52** : 48) placed *omaha*, *mingo*, and *californica* as synonyms of *Hesperia dara*, Kollar 1844 (von Hügel, *Kaschmir* : 455). Draudt in 1934 (Seitz, *Macrolep.*, **5** : 947) followed Holland. Lindsey, Bell and Williams 1931 (*J. Sci. Labs. Denison Univ.*, **26** : 69) placed the four names as synonyms of the European *Papilio palaemon*, Pallas 1771, but have since stated (in litt.) that they realised the species had nothing to do with *P. palaemon* and are at a loss to understand how the references came to be so placed in their paper.

The status of the name *Potanthus* was questioned by Mr. Francis Hemming in connection with his work on the generic names of Rhopalocera. As it was considered impossible to arrive at any definite conclusions without an examination of the type specimens of *omaha*, *mingo* and *californica*, inquiry was made by the British Museum from the authorities concerned in America. In response there was received :

(*a*) from Capt. Roswell C. Williams, Academy of Science, Philadelphia, a water-colour of the type of *omaha* accompanied by a paratype, asserted to be of the same species and sex as the type, as well as 12 other specimens standing in the collection over the label *dara*.

(*b*) from Dr. A. Avinoff, Carnegie Museum, Pittsburg, a specimen considered to be the type of *mingo*.

(*c*) from Mr. Nathan Banks, Museum of Comparative Zoölogy, Cambridge, Mass., the type of *californica* accompanied by a second specimen, which is a male of the S. American species *Zariaspes mys*, Hübner.

The generous response from our American confrères now makes it possible to elucidate matters.

All the specimens sent (except *californica*) appertain to the genus described by Moore 1881 (*Lep. Ceylon*, **1** : 170) as *Padraona* with the genotype *Pamphila maesa*, Moore 1865 (*Proc. zool. Soc. Lond.*, **1865** : 509) described from Kulu, N.W. Himalayas. *Pamphila maesa*, Moore, is a synonym of *Hesperia dara*, Koll. The paratype of *Hesperia omaha*, Edwards, is a female of *Pamphila maesoides*, Butler, and probably the specimen came from Malacca; I have no doubt that the type is the same. The type of *Hesperia mingo*, Edwards, is a male of *Pamphila nitida*, Mabille 1878 (*Pet. Nouv. ent.*, **2** : 114) described from the Philippines; the genitalia and facies agree with Mabille's type in the British Museum. The type of *Potanthus californica*, Scudder, is a male of *Pamphila akar*, Mabille 1883 (*C.R. Soc. ent. Belg.*, **3** : lxxi) described from the Philippines; the type facies agree exactly with Mabille's type in the British Museum, but as the specimen sent had no abdomen, a genitalia examination

could not be made; it appertains to the genus *Oriens*, Evans 1931 (*Ident. Ind. Butts.* (2nd ed.): 312). The remaining 12 specimens sent from Philadelphia were 3 ♂♂ 3 ♀♀ of *Padraona dara* from the N.W. Himalayas; 3 ♂♂ of *Padraona confucius*, Felder 1862, from China and Japan (Japanese subspecies = *flava*, Murray 1875); 1 ♂ of *Padraona pseudomaesa*, Moore 1881, from Ceylon or S. India; 1 ♂ 1 ♀ of *Padraona maesoides* from Malacca or Sumatra.

As a result of the above determinations, the following changes are necessary.

(1) The names *Potanthus, omaha, mingo*, and *californica* are transferred from the American to the Oriental lists.

(2) *omaha*, Edwards, replaces *maesoides*, Butler.

(3) *mingo*, Edwards, replaces *nitida*, Mabille.

(4) *californica*, Scudder, replaces *akar*, Mabille.

(5) *Potanthus*, Scudder (genotype *Hesperia omaha*, Edwards) replaces *Padraona*, Moore.

A NOTE ON THE GENUS *NARYCIUS* AND A FEW OTHER GENERA OF CETONIID COLEOPTERA

By Gilbert J. Arrow, F.R.E.S.

(*British Museum* (*Natural History*).)

In 1933, *Mitt. deuts. ent. Ges.*, **4** : 27, Prof. Schürhoff has announced an astonishing conclusion with regard to the three Cetoniid genera *Narycius*, *Platynocephalus* and *Asthenorhella*. Although the first is a South Indian insect, the second Burmese and the third West African and the three have very little resemblance to one another, Herr Schürhoff regards the types (which he has not seen) as all belonging to the same species. The African *Asthenorhella leonina*, said, quite correctly, by Westwood to be described from a male specimen, he believes to be the female of *Narycius opalus*, Dup., as well as the Burmese *Platynocephalus hamiltoni*, the head of which he pronounces to belong to an insect of another genus. This also is not the fact. The two type specimens in question are in the British Museum, and it is unfortunate that, instead of publishing such incorrect statements, Herr Schürhoff did not ascertain the facts, which would have been readily supplied to him. The distinctive features of the two Indian genera were formulated by me in the "Fauna of India" volume which he evidently consulted, but without sufficient care.

Although the three genera just mentioned are entirely distinct, the two South Indian genera *Narycius* and *Cyphonocephalus* are very closely related and confusion still exists in their nomenclature. *N. olivaceus*, Dup., described from a single female, was considered by Westwood to belong to *N. opalus*, but was referred by me in the volume mentioned above (1910) to *Cyphonocephalus* as probably the female of *C. smaragdulus*, Westw. I have since received a female of a second species of *Cyphonocephalus* which I believe to be the true *C. olivaceus*. It differs from *C. smaragdulus* by the well-marked front angles and less rounded sides of the pronotum and narrower processes upon the head. The specimen was found at Balur, in the Kadur province of Mysore. M. René Oberthür, who owns the types of Dupont, assures me that *C. olivaceus* and *smaragdulus* are not the same. The male of *Cyphonocephalus olivaceus* and the female of *Narycius opalus* remain unknown.

THE RECENT AND FOSSIL PROPHALANGOPSIDAE (SALTATORIA)

By Friedrich E. Zeuner, Ph.D.

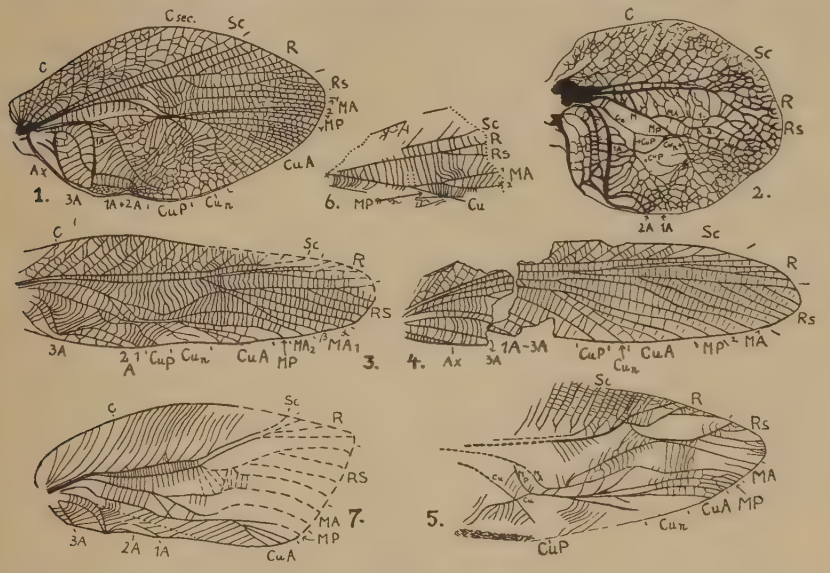
A very peculiar living Orthopteron is *Prophalangopsis obscura*, Walker. The only specimen known of this species is a male in the collection of the British Museum. Owing to its unusual characters, authors that have studied this genus have placed it in different families. Walker (1869) described it as a Gryllid, owing to its three-segmented tarsi and, probably, its general appearance. Later on, de Saussure spoke of a "tribu des Tarragiens," but it was not until 1911 that the Prophalangopsinae were established as a new subfamily of Tettigoniidae by Caudell. Fourteen years later, Handlirsch transferred the subfamily to the then Stenopelmatidae (now a subfamily of Gryllacrididae). Evidently, Handlirsch was not quite certain as to the position of the genus, for he defines the Stenopelmatidae as lacking a stridulating organ and speaks, five lines below, of the large stridulating organ of the Prophalangopsinae. Later, he realised the primitive features of *Prophalangopsis*, and in 1929 he erected a separate family for it. Finally, Karny included the insect in his Gryllacrididae as a subfamily. Thus, *Prophalangopsis* has been ascribed to at least three different families of Saltatoria.

Another strange, recent genus is *Cyphoderris*, Uhler, containing *C. monstrosus*, Uhler (1864) and *C. buckelli*, Hebard (1934). It has also changed its systematic position several times. Scudder (1898) placed it in the group Anostostomata of the Gryllacrididae, but Kirby, in 1906, following Walker (1869), referred to it as a Tettigoniid of the subfam. Decticinae. In Buckell's papers (1921–1924) it appears among the Stenopelmatinae which, according to Karny, belong to the Gryllacrididae. Karny himself, in 1929, mentioned in a foot-note (p. 747) that it could not then be decided whether *Cyphoderris* belonged to the Prophalangopsinae, but later, in 1932, he definitely placed it in the Henicinae. Therefore, *Cyphoderris* has been considered to be a Gryllacridid (except by Kirby and Walker), but the difficulty always has been that the male fore-wings carry a stridulating organ. It has this character in common with *Prophalangopsis*. I have had the opportunity of studying both genera in detail, and there is no doubt that they are closely allied, although the tarsi of *Cyphoderris* are four-segmented and provided with pulvilli.

I have approached the question of the classification of these two genera from the palaeontological standpoint. In 1845, Brodie and Westwood described several wings from the Lias of England which they called *Chauliodes*, Brodie, *Orthophlebia*, Westwood, and *? Myrmeleon*, Westwood. The names indicate that the authors considered the fossils to be "Neuroptera." In 1856, Giebel made a new genus *Hagla* for the same forms, with the main species *gracilis*. He also believed them to be Neuroptera, ranging them among the Sialidae. It was not until 1906 that Handlirsch realised that *Hagla*, Giebel, belongs to the "Orthoptera," but he did not compare it with the Saltatoria. In his *Handbuch der fossilen Insekten*, as well as in Schröder's *Handbuch der Entomologie*, it appears as the family Haglidae of the Mantoidea.

When examining the large collection of Jurassic insects in the British Museum (Natural History), I happened to find about 30 specimens of *Hagla gracilis*, Giebel. None of the specimens was properly determined, but fortunately there was Brodie's specimen (1845, *Hist. Foss. Ins.*, pl. 8, fig. 14) among them, which later became the type of *Hagla gracilis*, Giebel. This rich material has enabled me to recognise that all the specimens hitherto referred to *Hagla* were only the

female elytra of a long-horned grasshopper, and that certain other wings with a very aberrant venation represent the corresponding males (figs. 3 and 4).



FIGS. 1–7.

Fig. 1.—Male fore-wing of *Prophalangopsis obscura*, Walker. Right wing (the costal area transposed from the left). Length, 47 mm. Csec: secondary costal vein, developed from the network.—Type (No. $\frac{81}{83}$, British Museum).—Recent, Hindustan; fig. 2.—Male fore-wing of *Cyphoderris monstrosus*, Uhler. Left wing from below. Length, 12·5 mm. Drawn on a photograph, made by Mr. W. H. T. Tams, of a specimen provided by Mr. E. R. Buckell and preserved in the coll. of Orthoptera, British Museum.—Recent, Clinton, British Columbia; fig. 3.—Male fore-wing of *Hagla gracilis*, Giebel. Left wing, transposed. Length, 40 mm.—Allotype (No. I. 10704, British Museum).—Lower Lias, Strensham, Worcestershire; fig. 4.—Female fore-wing of *Hagla gracilis*, Giebel. Right wing. Length, 37 mm.—Specimen on which the revised diagnosis of the female is based. (I. 10660/10541, British Museum).—Lower Lias, Strensham, Worcestershire; fig. 5.—*Liassophyllum abbreviatum*, gen. et sp. n. Male fore-wing, holotype (I. 3382, British Museum). Length about 45 mm., width, 18 mm.—Lower Lias, Binton, Warwickshire; fig. 6.—*Procyrtophyllites britannicus*, gen. et sp. n. Middle part of male (?) fore-wing, holotype (In. 19064, British Museum). Length between the crossed points 42·5 mm.—Purbeck, "(Swanage) Dorset," England; fig. 7.—*Cyrtophyllites musicus*, Handlirsch. Male fore-wing, after a specimen in the British Museum (No. 31937), apical part partly after Handlirsch. Length, 45 mm.—Upper Oolite, Solnhofen, Bavaria.

The male elytra resemble *Prophalangopsis*, Walker, in very important features. A further detailed study of other forms proves that in Jurassic times grasshoppers with a Prophalangopsid-like venation were abundant and that they can be separated easily from other Saltatoria as a well-defined group. This group, for which I am retaining Handlirsch's name PROPHALANGOPSIDAE, consists of at least 7 fossil and 2 recent genera. The typical genus is *Prophalangopsis*, Walker.

PROPHALANGOPSIDAE, Handlirsch.

Diagnosis: Saltatoria with rounded head of Gryllacridid type, with long antennae. Pronotum semi-cylindrical, lateral lobes narrow, posterior dorsal part much broadened in

the males of both living genera. Fore-wings of male with sound apparatus consisting of *Cu* and *A*, but no mirror between Cu_a and *CuP* (as in most Gryllidae and Tettigoniidae) and no harp between *CuP* and 1*A*(as in Gryllidae). Female fore-wing of a very primitive Tettigoniid type (only known from fossils). Fore legs with tibial ear. Tarsi four- or three-segmented, with or without pulvilli.—Triassic up to recent, abundant in the Lower Jurassic. —Typical genus : *Prophalangopsis*, Walker.

I. Subfam. Prophalangopsinae, Caudell 1911.

Diagnosis : Male fore-wing with " centre."

1. *Prophalangopsis*, Walker 1871.

1869. *Tarraga*, Walker, *Cat. Derm. Salt. Brit. Mus.*, **1** : 100.
1871. *Prophalangopsis*, Walker, *Cat. Derm. Salt. Brit. Mus.*, **5**, Suppl. : 116.
1898. *Tarraga*, Walker : H. de Saussure, *Rev. suisse Zool.*, **5** : 241, pl. 9.
1906. *Prophalangopsis*, Walk. : Kirby, *Syn. Cat. Orth. Brit. Mus.*, **2** : 290.
1911. *Prophalangopsis*, Walker : Caudell *in* Wytsman, *Gen. Insect.*, **120** : 6, pl. 1.
1925. *Prophalangopsis* (= *Tarraga*) : Handlirsch *in* Schröder's *Handb. Ent.*, **3** : 456.
1929. *Prophalangopsis* : Handlirsch *in* Kükenthal, *Handb. Zool.*, **4** : 724, fig. 763, 708.
1929. *Prophalangopsis* : Karny, *Lingnan Sci. J.*, **7** : 747, fig. 16.
1930. *Prophalangopsis* : Karny, *Arch. Zool. ital.*, **15** : 234–235.
1934. *Prophalangopsis* : Zeuner, *Nature*, **134** : 460.

Diagnosis : Male fore-wing (fig. 1) with *Rs* less developed than *R*. *MP* and MA_2 touching *CuA* in a peculiar junction in the centre of the wing. 1*A* very strong, bent at right angles in two places, in its basal part parallel with and close to *Cu*.

Tarsal segments three only, the basal one distinctly composed of two fused segments. Only slight traces of pulvilli.

Genotype and sole species : *P. obscura* (Walker) 1869.

Occurrence : Recent, Hindustan.

The figures hitherto published of this species are not correct. I give here (fig. 1) one of the right fore-wing, drawn with the camera lucida as accurately as possible. The costal area is taken from the left side, this part of the right wing being too much damaged. There are no important differences in venation between the two sides, another primitive character of the whole family.

2. *Cyphoderris*, Uhler 1864.

1864. P. R. Uhler, *Proc. ent. Soc. Philad.*, **2** : 543–555.
1869. Walker, *Cat. Derm. Salt. Brit. Mus.*, **2** : 248.
1876. Thomas, *Proc. Davenport Acad. nat. Sci.*, **1** : 263.
1899. Scudder, *Canad. Ent.*, **31** : 117.
1900. ——, *Proc. Davenport Acad. nat. Sci.*, **8** : 80.
1901. ——, *Psyche*, **9** : 167.
1901. ——, *Canad. Ent.*, **33** : 17–19.
1901. Turley, *Canad. Ent.*, **33** : 246–248.
1901. Scudder, *Occ. Paps. Boston Soc. nat. Hist.*, **6** : 91.
1904. Caudell, *J. New York ent. Soc.*, **12** : 47–53.
1904. ——, *Ent. News*, **15** : 63.
1906. Kirby, *Syn. Cat. Orth. Brit. Mus.*, **2** : 193.
1907. Fletcher & Gibson, *Rep. Ontario ent. Soc.*, **1907** : 131.
1907. Caudell, *Ent. News*, **18** : 335–336.
1921. Buckell, *Proc. ent. Soc. Brit. Columbia* (*Syst.*), **18** : 34.
1922. ——, *Proc. ent. Soc. Brit. Columbia* (*Syst.*), **20** : 34.
1923. ——, *Canad. Ent.*, **55** : 225–230.
1924. ——, *Proc. ent. Soc. Brit. Columbia* (*Syst.*), **21** : 9–10.
1929. Karny, *Lingnan Sci. J.*, **7** : 747 foot-note.
1930. ——, *Arch. Zool. ital.*, **15** : 234.
1930. Fulton, *Ann. ent. Soc. Amer.*, **23** : 611–640.
1934. Hebard, *Trans. Amer. ent. Soc.*, **59** : 371–375, pl. 22.

Diagnosis : Male fore-wing (fig. 2) reduced in size, nearly circular in shape. *R* and *Rs* reduced, disappearing in a network, but *Rs* distinctly the stronger. *MP* joining *Cu* in the " centre," but MA_2 entirely free. 1*A* very strong, its vertical part slightly S-shaped, and distant from *Cu*.

Four tarsal segments, provided with normal pulvilli.

Genotype : *C. monstrosus*, Uhler 1864.

Occurrence : North-western U.S.A. and south-western Canada.

The genus contains two species, *C. monstrosus*, Uhler, and *C. buckelli*, Hebard, 1934. The differences lie in the male genitalia, but the fore-wings of the two species (developed in the males only) are practically identical. Through the kindness of Mr. E. R. Buckell and Mr. B. P. Uvarov, I was enabled to study 10 ♂♂ and 2 ♀♀ of *monstrosus*, and 9 ♂♂ and 1 ♀ of *buckelli*. I give here a drawing showing the fore-wing of *monstrosus* (fig. 2). It is easy to see that *Cyphoderris* and *Prophalangopsis* have a very similar venation and that they form a group within the family, characterised by the formation of the " centre " of the wing. In the structure of the tarsi, however, they appear far removed from each other, *Prophalangopsis* suggesting GRYLLIDAE, and *Cyphoderris* TETTIGONIIDAE.

II. Subfam. **HAGLINAE** subfam. n.

Diagnosis : No centre in the male fore-wing, Cu_a and *CuP* present.

3. *Aboilus*, Martynov 1925.

1925. *Aboilus*, Martynov, *Bull. Acad. Sci. U.S.S.R.*, (6) **19** : 581.

Diagnosis : Male fore-wing with MA_2 undulating. *CuA* forking first at the junction with *MP*. *CuP* not undulating. All cross-veins straight.

Genotype and species : *A. fasciatus*, Martynov 1925.

Occurrence : Jurassic of Turkestan.

This is the most primitive Prophalangopsid hitherto known.

4. *Hagla*, Giebel 1856.

1845. *Chauliodes*, Brodie, *Foss. Insects* : 102, pl. 8, figs. 3, 6, 14.
1845. *Orthophlebia*, Westwood, *in* Brodie, *Foss. Insects* : 126, pl. 8, figs. 3, 6, 14.
1845. *?Myrmeleon*, Westwood, *in* Brodie, *Foss. Insects* : 126, pl. 10, fig. 5.
1856. *Hagla*, Giebel, *Fauna Vorwelt*, **2** (1) : 264.
1906. *Hagla*, Giebel : Handlirsch, *Foss. Insekt.* : 425.
1906. *Haglodes*, Handlirsch, *Foss. Insekt.* : 425.

Diagnosis : Male fore-wing (fig. 3) with MA_1 more, MA_2 less undulating. *CuA* forking first before it is met by *MP*. *CuP* strongly undulating. Many cross-veins S- or U-shaped. 1*A* modified as stridulating vein.—Female fore-wing (fig. 4) more slender, with straight longitudinal veins, anales normally curved.

Genotype and sole species : *H. gracilis*, Giebel 1856.

Occurrence : Lower Lias of England.

Numerous species have been described, and Handlirsch even erected a separate genus *Haglodes*, but all the known specimens doubtless represent the same species which in accordance with the rules is *H. gracilis*, Giebel. This is the best known form of the family. I have studied 26 specimens showing fore-wings of both sexes, hind-wings and parts of the body and legs. This early form already had the tibial ear developed, and the cubito-anal area of the male fore-wing turned into the oriment of a stridulating apparatus. But 1*A*, the stridulating vein, is not yet thickened as it is in recent genera.

5. *Notopamphagopsis*, Cabrera 1928.

1928. *Notopamphagopsis*, Cabrera, *Eos, Madrid*, **4** : 372, pl. 6.

Diagnosis : Allied to *Hagla*, Giebel, but first branch of *R* much shorter and not parallel to R_2.

Genotype : *N. bolivari*, Cabrera 1928.

Occurrence : Triassic, Province of Mendoza, Argentina.

This is the earliest Prophalangopsid known.

6. **Liassophyllum**, gen. n.

Diagnosis: Male fore-wing (fig. 5) with distinctly pointed apex and reduced in length. Middle branch of *R* strongly undulating. *Rs* forming a strong arc concave to the fore-margin. MA_1 forming an arc opposing *Rs*, and nearly touching it. *MP* (as usual) fused with *Cu*. The main stem of *Cu*, *CuP* and a cross-vein of the cubito-anal region form an X-shaped cross.

Genotype and sole species: *L. abbreviatum*, sp. n.

Liassophyllum abbreviatum, sp. n.

About 45 mm. long and 18 mm. wide, with irregular brown spots.

Occurrence: Lower Lias of Binton, Warwickshire.

Holotype: Specimen I. 3382, British Museum (Natural History), Slater Coll., Department of Geology.

This form illustrates the fact that already in early Jurassic times there was a tendency to reduce the size of the wings.

III. Subfam. **Cyrtophyllitinae**, subfam. n.

Diagnosis: A "main cross-vein," or modified cross-veins replacing it, between *Rs* and *MA*. Cu_n and *CuP* reduced.

7. **Procyrtophyllites**, gen. n.

Diagnosis: Venation of the male fore-wing (fig. 6) similar to that of *Cyrtophyllites*, Oppenheim. Main cross-vein between *Rs* and *MA* missing, replaced by a number of S-shaped cross-veins.

Genotype and sole species: *P. britannicus*, sp. n.

Procyrtophyllites britannicus, sp. n.

Male fore-wing very large about 70–80 mm. long. Area between *R* and *M* strongly elevated. *Rs* leaving *R* just above the furcation of *MA*.

Occurrence: Purbeck Beds of "(Swanage), Dorset," England.

Holotype: Specimen In. 19064, British Museum (Natural History), H. S. Beckles Coll., Department of Geology.

This very peculiar wing is not completely preserved. It is obvious that the main cross-vein between *R* and *M* in *Cyrtophyllites* evolved from the crowded middle parts of the S-shaped cross-veins in *Procyrtophyllites*.

8. *Cyrtophyllites*, Oppenheim 1888.

1888. *Cyrtophyllites*, Oppenheim, *Palaeontographica*, **34**: 222.
1906. *Cyrtophyllites*, Oppenheim: Handlirsch, *Foss. Insekt.*: 520.
1925. *Cyrtophyllites*, Handlirsch, *in* Schröder, *Handb. Ent.*, **3**: 188.
1929. *Cyrtophyllites*, Handlirsch, *in* Kükenthal, *Handb. Zool.*, **4**: 708.
1934. *Cyrtophyllites*, Oppenh.: Zeuner, *Nature*, **134**: 460.

Diagnosis: Costal area very broad, with regular branches of *Sc*. Strong main cross-vein between *MA* and *Rs* causing an unconformity amongst the normal cross-veins. Cu_n and *CuP* apparently not present. 1*A* and 2*A* as usual in Prophalangopsidae, but anal region very small and bent down along a fold in the cubital area (fig. 7).

Genotype: *C. rogeri*, Oppenheim 1888.

Occurrence: Upper Jurassic of Germany and ? England.

This genus contains the species *rogeri*, Oppenheim, and *musicus*, Handlirsch 1906. It much resembles the Tettigoniidae, but Cu_n and *CuP* are reduced. Therefore, it cannot be a form linking up the Prophalangopsidae with the Tettigoniidae; it is rather a side branch showing the same reduction in size of the musical organ, and other characters of certain Tettigoniidae. The Cyrtophyllitinae might have been a first "attempt to modernise" the primitive sound organ of the Prophalangopsidae.

IV. Subfamily uncertain.

9. *Pamphagopsis*, Martynov 1925.

1925. *Pamphagopsis*, Martynov, *Bull. Acad. Sci. U.S.S.R.* (6) **19** : 578.

Genotype : *P. maculata*, Martynov 1925.

Occurrence : Jurassic of Turkestan.

Obviously the two species described by Martynov (*maculata* and *modesta*) represent hind-wings of species of PROPHALANGOPSIDAE.

10. Genera indet.

A number of Jurassic specimens in the collection of the British Museum are not sufficiently well preserved to permit of description. From the characters they exhibit, however, it can be seen that they belong to at least two further genera of PROPHALANGOPSIDAE.

The sole purpose of the present paper is to define the family; the detailed discussion of the genera can be left for a monograph of the fossil Orthoptera now in preparation. But even the short descriptions given above show that the known genera of PROPHALANGOPSIDAE represent different stages in the specialisation of the wings.

HAGLINAE. The best known genus is *Hagla*, Giebel, the only genus in which fully winged females are known. It may help to form some idea as to what the unknown female of the recent *Prophalangopsis* looks like. The female of the Liassic *Hagla* exhibits no adaptation for the production of sounds in the fore-wing, but in the male a considerable extent of the fore-wing takes part in the formation of a sound organ that even includes the median vein. The cubito-anal region is wide, and the strongly curved $1A$ and $2A$ are comparatively long. It seems as if more or less the whole fore-wing of one side was rubbed against the other, and that the adaptation of $1A$ (which later becomes the sole stridulating vein) is just beginning.

CYRTOPHYLLITINAE. *Cyrtophyllites*, of the Upper Jurassic, represents a higher stage; the anal part is much smaller, is restricted to the inner corner of the wing, and is bent to form a right angle with the main part of the wing, just as in many recent TETTIGONIIDAE. In a recent paper (Phylogenesis of the stridulating organ, 1934, *Nature*, **134** : 460) I mentioned *Cyrtophyllites* as a form showing how the stridulating organ of modern TETTIGONIIDAE developed from that of the PROPHALANGOPSIDAE. But *Cyrtophyllites* cannot be a direct ancestor of the TETTIGONIIDAE, as Cu_n and CuP are entirely reduced. As mentioned above, in the description of the genus, it obviously is a side branch which may be considered as a " fehlgeschlagene Anpassung " in the sense of O. Abel. The two recent genera of PROPHALANGOPSIDAE stand nearer to the radicle of the modern TETTIGONIIDAE as well as the GRYLLIDAE.

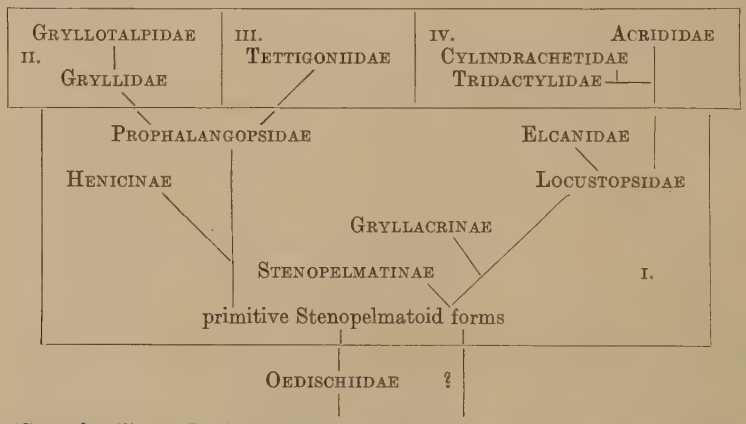
PROPHALANGOPSINAE. *Prophalangopsis* and *Cyphoderris* are rather similar in venation and are more specialised than the Jurassic forms. The former genus at least represents another side branch of the family; it has not directly given rise to other groups. The first A is peculiarly Z-shaped; but Cu_n and CuP are still normal branches of Cu. From the " centre " of the wing a cross-vein can be seen developing out of the network and tending to connect the centre with CuP. This, together with the curved Cu_n and CuP, is the oriment of the mirror of the later GRYLLIDAE and TETTIGONIIDAE, while the area between CuP and $1A$ represents the primitive stage of the Gryllid harp. (The Liassic GRYLLIDAE have the harp, but the mirror is not yet completed, Cu_n and CuP not having fused their distal ends.) Thus, *Prophalangopsis*, though specialised in certain characters, looks like an ancestor of GRYLLIDAE and TETTIGONIIDAE in other respects. In fact, the tarsal segments of *Propha-*

langopsis point in the direction of the GRYLLIDAE, but those of *Cyphoderris* have preserved the stage of the TETTIGONIIDAE.

No known Prophalangopsid genus, fossil or recent, can be considered to be the true ancestor of the two recent families mentioned. Yet the family PROPHALANGOPSIDAE as a whole, as defined above, is clearly ancestral to the GRYLLIDAE and TETTIGONIIDAE in most of its characters. A form that possibly connects the PROPHALANGOPSIDAE with the TETTIGONIIDAE, or even belongs to the PROPHALANGOPSIDAE, is the Miocene *Rammea laticeps*, Zeuner (1931, *Insektenfauna des Böttinger Marmors, Berlin* : 253–259, figs. 1–5, pl. 1). When studying *Rammea*, I came to the conclusion that it is ancestral to the BRADYPORINAE and EPHIPPIGERINAE and that the other TETTIGONIIDAE may be derived from it. The head of *Rammea* is of a type that only occurs in BRADYPORINAE, PROPHALANGOPSIDAE and certain GRYLLACRIDIDAE, but, unfortunately, the venation of the wings is unknown. Thus, the systematic position of *Rammea* cannot be fixed at present. It may be a typical, extremely primitive Tettigoniid (as I explained in the above-mentioned paper), or a Prophalangopsid. That there are special relations between the PROPHALANGOPSIDAE and the BRADYPORINAE, is likely. In characters of the head, the legs and the reduced fore-wings even *Cyphoderris* resembles *Bradyporus*, but this is a question that needs further examination.

On the other hand, Karny has sufficiently emphasised the close relations of *Cyphoderris* and *Prophalangopsis* to the GRYLLACRIDIDAE. Little is known of fossil cricket-locusts, but the family is undoubtedly more primitive than any other living Saltatorial group. Karny's arguments for this seem to be sound.

Thus, the place of the PROPHALANGOPSIDAE in the evolution of Orthoptera is clearly defined. The following table serves to explain their relations to the other families in detail :



[Superfamilies : I. Gryllacridioidea, II. Grylloidea, III. Tettigonioidea, IV. Acridioidea (see F. Carpentier, 1932, *Ve Congr. Int. Ent. Paris* : 271–276, who places the CYLINDRACHETIDAE and TRIDACTYLIDAE among the Acridioidea).]

I gladly take this opportunity of expressing my thanks to all those who have assisted these investigations in various ways : Mr. E. R. Buckell, Vernon, British Columbia; Dr. W. D. Lang, F.R.S., and Mr. T. H. Withers, Geology Dept., Brit. Museum; Mr. W. H. T. Tams, Entomology Dept., Brit. Museum; Mr. B. P. Uvarov, Imperial Institute of Entomology, and Dr. S. A. Neave, O.B.E., President of the Royal Entomological Society of London.

NEW SPECIES OF NEOTROPICAL LONGICORN BEETLES

By E. Gorton Linsley.

(*University of California.*)

Eburodacrys **topographicus,** sp. n.

Slender, parallel-sided, yellowish-testaceous. Head very finely, closely punctured, clothed with fine, short, recumbent, yellowish pubescence; antennae one and one-half times as long as the body (♂), sparsely ciliate, third segment sulcate and spinose at apex, segments four to six carinate, spinose. Prothorax transverse, with a prominent lateral tubercle; disk with a round, black tubercle on each side of middle, and a transverse, arcuate, median, basal impression; basal margin sinuate; punctation moderately coarse, sparse; pubescence fine, very short, recumbent. Elytra slightly more than three times as long as broad, with an oval, glabrous, eburneous fascia at base and a similar fascia just behind the middle, the fasciae margined with black; punctation moderately coarse and dense at base, becoming finer, sparser, apically; disk and apex with a few long, scattered, suberect setae; apices prominently bispinose, the external spine longer. Body beneath finely, densely punctured, finely clothed with short, recumbent pubescence. Legs slender; femora suddenly swollen in apical one-half, sparsely clothed with scattered, suberect setae; tibiae carinate; first segment of posterior tarsus longer than second and third together. Length 14 mm.; breadth 3·3 mm.

Holotype ♂, Canal Zone: Ciricito, November 10, 1931 (*R. E. Blackwelder*), who very kindly presented it to the author. Type in California Academy of Sciences.

This species is related to *E. coalescens*, Bates, from Nicaragua, with which it agrees in the union of each of the basal and post-median pairs of eburneous elytral fascia, but differs markedly in the prominent lateral thoracic tubercles, suddenly clavate and pedunculate femora, and the strongly bispinose elytral apices.

Elaphidion mimeticum, Schaeffer.

A female example of this species which was described from Brownsville, Texas, was captured at Punta Gorda, British Honduras, in February 1934 (*J. J. White*) (collection of Mr. Lionel Lacey).

Ibidion **x-notatum,** sp. n.

Elongate, cylindrical, shining, sparsely clothed with long, suberect setae. Head black, underside testaceous; pubescence fine, recumbent, intermixed with long, scattered, suberect setae; antennae slightly longer than body (♂), not carinate, sparsely ciliate, rufotestaceous, with apical margin of segments black; scape not stout, subcylindrical, slightly curved, third segment one and one-half times as long as scape, fourth segment about one-half as long as third, fifth segment one-fourth longer than fourth, remaining segments decreasing gradually in length to eleventh segment which is longer and feebly appendiculate. Pronotum subcylindrical, feebly constricted at base and before apex; surface clothed with fine, recumbent, yellowish pubescence and scattered, erect setae. Scutellum rounded, clothed with recumbent, yellowish pubescence. Elytra piceous black, shining, with scattered erect setae but no recumbent pubescence; punctation sparse, the punctures arranged in three or four longitudinal lines; basal margin and a median X-like fascia pale

testaceous; apices emarginate, not spinose. Body beneath shining; basal half of prosternum, as well as the entire meso- and metasterna pale testaceous, clothed with recumbent yellowish pubescence. Femora clavate, pale testaceous, the swollen portion slightly piceous; tibiae carinate, piceous; tarsi piceous. Abdomen clothed with recumbent yellowish pubescence intermixed with long erect setae. Length 7 mm.; breadth 2·75 mm.

Holotype ♂, British Honduras: Punta Gorda, July 1932 (*J. J. White*), submitted to me for study by Mr. Lionel Lacey. Type in the California Academy of Sciences.

I. x-notatum resembles *Heterachthes validicorne*, Bates, from Panama, but may be distinguished by the carinate tibiae, non-spinose elytral apices, more strongly clavate femora, and the close approximation of the elytral pale markings. The head, pronotum, basal portion of the prosternum, and the meso- and metasterna and abdomen are piceous, clothed with fine, recumbent, yellowish pubescence, the remaining surface with only scattered, suberect setae. The pale markings consist of a basal band between the humeri and a median X-shaped fascia.

Ophistomis rufiventris, Bates.

Bates described only the male of this species. The female is entirely black, slightly more robust than the male, more coarsely punctured, and the elytral apices are emarginate with both angles dentiform. I have before me a male example from British Honduras (collection of Mr. Lacey) which differs from the typical form in having the basal one-third of the prothorax, the scutellum, the basal margin of the elytra, the mesothoracic episterna and the metathorax rufous, as well as the abdomen.

Ophistomis **nigrita,** sp. n.

Elongate, slender, black, shining. Head in front of the eyes elongate; punctation close and rather coarse on vertex, sparse and finer behind the eyes; antennae two-thirds as long as the body (♂), segments three to five slender, shining, sparsely punctured and pubescent, segments six to eleven swollen, opaque, densely punctured and pubescent. Pronotum trapezoidal, shining, sparsely punctate, with a median, longitudinal, polished, impunctate line; posterior angles subacute; basal margin sinuate. Elytra cuneiform, moderately and evenly punctured, from each puncture arising a short, suberect, pale hair; apices emarginate, the angles subacute. Legs slender, the anterior femora rufo-testaceous, base and apex piceous, intermediate femora with basal one-third rufotestaceous, posterior femora entirely black; first segment of posterior tarsus longer than remaining segments together, without pubescent sole. Prosternum, mesothoracic episterna, and apex of metathoracic episterna shining, almost impunctate; meso- and metathorax finely, closely punctured, densely clothed with fine, recumbent pubescence; first four abdominal segments finely, closely punctured, pubescent at base, more sparsely punctate and shining at apex; fifth ventral abdominal segment (♂) strongly excavated and longitudinally impressed. Length 14 mm.; breadth 3 mm.

Holotype ♂, British Honduras: Punta Gorda, March 1934 (*J. J. White*). Type in California Academy of Sciences.

O. nigrita is related to *O. lachrymans*, Bates, from Guatemala, but differs in the less suddenly narrowed elytra which are entirely black and without trace of pale fasciae, the longer head in front of the eyes, the emarginate elytral apices with both angles subacute, and the heavier thighs of which the anterior and intermediate pairs are bi-coloured.

Deliathus **albidus,** sp. n.

Large, moderately robust, piceous; elytra clothed with uniform, white, recumbent pubescence. Head deeply sulcate between the antennae, finely, closely punctured, front and vertex with numerous irregular rugae; pubescence short, recumbent, fulvous, except for a dense white vitta behind each eye; antennae one-fifth longer than the body (♂), scape stout, surface with transverse rugae, segments three to eleven finely, closely punctured and pubescent, segments three to seven sparsely ciliate within. Pronotum transverse, with prominent lateral spines, surface finely closely punctured, discal area with numerous transverse rugae; disk with a broad, white, longitudinal band on each side of middle, median and lateral vittae fulvous. Scutellum transverse, finely punctured, clothed with recumbent fulvous pubescence. Elytra uniformly clothed with dense, white, recumbent pubescence which is interrupted in humeral and circumscutellar areas by round, black, polished asperities; apices unispinose. Legs finely, closely punctured, clothed with short, white pubescence. Body beneath finely, closely punctured, clothed with recumbent, fulvous pubescence except for a broad band of dense, white pubescence extending along the side from the apex of the prosternum nearly to the tip of the last abdominal segment; fifth ventral segment excavated beneath. Length 30·5 mm.; breadth 9·5 mm.

Holotype ♂, MEXICO: Temascaltepec, District of Temascaltepec, July 1933 (*H. E. Hinton* and *R. L. Usinger*). Type in the California Academy of Sciences.

D. albidus is related to *D. batesi*, Gahan, with which it agrees in the unicolorous elytra. It differs from *batesi*, however, in that the mesisternal process is not produced beyond the vertical wall of the mesosternum, and in the white elytral pubescence. The species is remarkable for the transverse rugae of the head, antennal scape, and disk of the pronotum.

Eupogonius **vandykei,** sp. n.

Subcylindrical, dark brown with an aeneous lustre, clothed with long, flying, brown and white hairs. Head rather coarsely, closely punctured, clothed with short, dense, recumbent griseus pubescence intermixed with erect pale hairs; antennae slightly longer than the body (♂), segments one to five densely fringed on all sides with long flying hairs, segments six to eleven fringed on inner side only. Pronotum transverse; lateral tubercles subacute; punctation coarse, dense; pubescence short, fine, griseus, not completely obscuring the punctures. Scutellum densely pubescent. Elytra coarsely, closely punctured in circumscutellar triangular area, sparsely and finely punctured elsewhere; strongly, obliquely impressed from humerus to suture in antemedian area; circumscutellar triangle almost glabrous, oblique impression densely clothed with pale pubescence, remaining area rather uniformly clothed with griseus pubescence intermixed with flying brown and white hairs; apices rounded. Legs and body beneath coarsely, not closely punctured, clothed with short, recumbent, griseus pubescence, intermixed with brown and white flying hairs. Length 6·5–9 mm.; breadth 2–3 mm.

Holotype ♂ and one paratype, MEXICO: Tejupilco, District of Temascaltepec, June 1933 (*H. E. Hinton* and *R. L. Usinger*); and one paratype, labelled MEXICO: Cuernevaca, July 1928. Type in California Academy of Sciences.

This species is closely related to *E. comis*, Bates, but differs in the closer, coarser punctation of the pronotum and base of the elytra, the more pronounced oblique sulcus of the base of the elytra, and in the rounded, not truncate elytral apices. I am indebted to Dr. E. C. Van Dyke for comparing this and the following species with the type of *E. comis* in the British Museum.

Eupogonius **triangularis,** sp. n.

Piceous with an aeneous lustre, clothed with long, erect, white, flying hairs. Head slightly depressed between the antennae, coarsely but not closely punctured; antennae slightly shorter than the body (♀), slightly longer than the body (♂), segments one to four fringed on all sides with long flying hairs, segments five to eleven fringed on inner side only. Pronotum transverse, lateral spines short; punctation moderately coarse, not close; pubescence short, fine, recumbent, griseus, with scattered white flying hairs intermixed. Elytra slightly obtuse, the oblique ante-median impression feeble; pubescence irregular, more or less uniformly mottled, intermixed with scattered, erect, pale hairs; punctation moderately coarse, not close in basal triangular area, finer sparser outside of basal triangular; apices truncate. Body beneath finely, closely punctured, clothed with short, recumbent, griseus pubescence. Length 8–8·5 mm.; breadth 2·5–3 mm.

Holotype ♀ and allotype ♂, Mexico: Real de Arriba, District of Temascaltepec, July 1933 (*H. E. Hinton* and *R. L. Usinger*). I have associated with these a third specimen, taken at the type locality, which differs somewhat in the length of the elytra and proportions of the prothorax.

E. triangularis resembles *E. comis* in size and form, type of pronotal and elytral punctation, and in the truncate elytral apices, but differs from both *E. comis* and *E. vandykei* in the more transverse prothorax and rather uniformly mottled appearance. It also suggests *E. subaeneus*, Bates, but this latter species has the punctures of the elytra rather uniformly coarse (not coarse in basal triangle and finer elsewhere).

Cylindrataxia salicicola, Linsley.

An example of this recently described species was captured in British Honduras: Punta Gorda, in February 1934 (*J. J. White*) (collection of Mr. Lionel Lacey).

Colobothea **unilineata fasciatipennis,** subsp. n.

Reddish-brown, clothed with short, white and brown, recumbent pubescence, with scattered, erect, black setae on the elytra. Head with a single line of white pubescence on the vertex; antennae slender, segments annulated at base with white. Pronotum with eight parallel, white, longitudinal vittae, of which the discal and two lateral pairs are very broad. Elytral white spots concentrated in basal, median, and subapical areas, with the median spots condensed on each elytra into a conspicuous fascia; apices truncate, the outer angle spiniform. Last dorsal segment of the female elongate, slender, gradually narrowed toward the apex which is feebly emarginate. Length 9·5–10 mm.; breadth 3–3·3 mm.

Holotype ♀ and one paratype ♀, Canal Zone: Ciricito, Feb. 25, 1930 (*R. E. Blackwelder*). Type in California Academy of Sciences, paratype in the collection of the author.

This subspecies agrees with typical *C. unilineata*, Bates, in structural characters but differs in the maculation of the prothorax and elytra. The pale vittae of the pronotum are all of the same length, the discal pair being broad and slightly narrowed apically, and the median pale spots of the elytra are condensed into a conspicuous fascia as in *C. chontalensis*, Bates. In typical *C. unilineata* (Nicaragua) the discal pronotal vittae are narrow, the first lateral vitta much reduced, attaining neither the base nor the apex, and the elytral pale spots are scattered.

Colobothea chontalensis, Bates.

Examples of this species from Panama differ rather constantly from the typical form in that the two anterior discal vittae of the pronotum extend backward and meet the median basal fascia, forming a letter **W**.

Antodice **fasciata,** sp. n.

Elongate, subparallel, brownish-testaceous, clothed with fulvous pubescence. Head finely, closely punctured, clothed at the sides and within the margin of the eyes with dense, white pubescence; vertex deeply longitudinally sulcate; antennae one-third longer than the body (♂), one-fifth longer than the body (♀), annulated, densely ciliate on inner side. Pronotum transverse, constricted before base and apex, very finely punctured except for a short, smooth, median vitta, clothed at sides with dense, white, recumbent pubescence. Elytra three times as long as broad, finely, closely punctured, with a few scattered, coarse punctures intermixed. Pubescence fulvous, recumbent, slightly irregular, with two small humeral white fasciae, a transverse, median, white fascia which does not attain the suture, and several small, irregular, apical, white fasciae. Body beneath clothed at sides with dense, white, recumbent pubescence intermixed with suberect fulvous hairs. Legs short, finely, closely punctured, clothed with long, flying, fulvous pubescence. Length 15–18 mm.; breadth 3–4 mm.

Holotype ♂, allotype ♀, and several paratypes, Mexico: Real de Arriba, District of Temascaltepec, June, 1933 (*H. E. Hinton* and *R. L. Usinger*). The specimens were captured at light.

This species differs from *A. cretata* and *A. nympha*, the only other described Central American members of this genus, in its large size (15–18 mm.), finely punctured pronotum and elytra, antennae with cilia on inner side only, and in having the white spots of the pronotum and elytra coalesced into definite fasciae.

Malacoscylus **usingeri,** sp. n.

Black, with an orange vitta from the vertex of the head to the scutellum and a patch of dense white pubescence on the side of the head below the eyes and on the side of the prosternum in front of the coxae. Head sparsely clothed with very fine, short, recumbent, greyish-brown pubescence; front coarsely but not closely punctured; vertex densely clothed with orange pubescence except for a narrow, black, longitudinal vitta, pubescence intermixed with scattered, erect, black hairs; antennae one-fourth shorter than the body (♀), black, segments three to eight annulated at base with fulvo-testaceous, third segment enlarged, densely fringed with long, black hairs, fourth segment shorter than third, remaining segments diminishing gradually in length toward apex. Pronotum transverse, densely pubescent with short black and orange pubescence, with scattered, erect, black hairs intermixed. Elytra short, broad, widest just before the apex; punctation coarse, moderately dense at base, becoming finer, sparser apically; pubescence short, suberect, densest on apical one-half; apices broadly rounded. Legs slender; anterior and middle femora testaceous, apex black; posterior femora black, annulated at base with testaceous. Body beneath finely, densely punctured, sparsely clothed with short, fine pubescence. Length 9 mm.; breadth 3 mm.

Holotype ♀, Mexico: Real de Arriba, District of Temascaltepec, July 1933 (*H. E. Hinton* and *R. L. Usinger*). Type in California Academy of Sciences.

Malacoscylus usingeri may be distinguished from both *M. humilis*, Bates, and *M. bivittatus*, Gahan, by the unicolorous black elytra, and univittate head, pronotum, and scutellum. It further differs from *M. humilis* in the shorter, broader elytra, and from *M. bivittatus* in the broadly rounded elytral apices and short, broad pronotum.

NEW ENGLISH APHIDAE (HEM.)

By D. Hille Ris Lambers.

(*Entomological Laboratory, Wageningen, Holland.*)

1. *Pleiotrichophorus* **duponti,** sp. n.

Apt. viv. fem. Body oblong, covered with short hairs with fan-shaped or knobbed apices, placed on rather large papillae. Tergite sclerotic, not coloured. Antennae shorter than body, IIIrd segment with 1–3 small rhinaria. Antennal hairs normal, not knobbed. Cauda conical, apex blunt, with 4–5 hairs, about $\frac{2}{3}$ the length of the siphunculi. Siphunculi rather thin and long, about $\frac{1}{6}$–$\frac{1}{5}$ length of body, imbricated, thinnest in the middle, almost without flange. First tarsal joints of all legs with 3 hairs.

Colour. Pale green, with darker green bars on thorax and each abdominal segment. Eyes brown, legs yellowish, tarsi black. Siphunculi and cauda pale green. Antennae yellowish-green, the apex of segment IV and segment V and VI completely black.

Measurements of one specimen. Length of body: 1·85 mm.; length of ant.: 1·51 mm.; length of siph.: 0·34 mm.; length of cau.: 0·22 mm. Prop. of ant. segments as: $\frac{100}{III} : \frac{81}{IV} : \frac{63}{V} : \frac{30 \div 99}{VI}$. Rhinaria on III: 2 + 2.

Food-plant. Achillea millefolium, on the basal and lower leaves.

Localities. Holland: Deventer, June 1929 (*F. Dupont & D.H.R.L.*), Lith, Sept. 1929, and Wageningen, Sept. 1934; England: Bath, Somerset, 8.viii.1934.

Notes. This species is closely allied to *P. glandulosus,* Kalt., from which it differs in the colour (yellowish-white in *P. gl.*), length of siphunculi (more than 2 × cauda), the proportion between processus terminalis and base of VIth segment of antenna (more than 5 times length of base in *glandulosus,* Kalt., less than 4 times in *P. duponti*), etc.

Type in the author's collection: Lith, Sept. 1929.

2. *Acyrthosiphon* **geranicola,** sp. n.

Apt. viv. fem. Body spindle-shaped, with rather short hairs. Tergum more or less sclerotic, corrugated, not coloured. Frontal tubercles rather strongly developed, slightly rounded inwards. Frontal furrow more or less rectangular. Antennae longer than body, IIIrd segment with 3–7 rhinaria in a row on basal part. Antennal hairs about $\frac{1}{3}$ diameter of IIIrd segment in length. Siphunculi about $\frac{1}{4}$ length of body, usually shorter, faintly imbricated, thin, with a distinct flange. Cauda $\frac{1}{2}$–$\frac{1}{7}$ length of siphunculi, with 8–11 hairs, elongated triangular, usually blunt, sometimes more or less acute. First tarsal joint of all legs with 3 hairs.

Measurements of one specimen. Length of body: 2·71 mm.; length of ant.: 2·90 mm.; length of siph.: 0·70 mm.; length of cau.: 0·39 mm. Prop. of ant. segments as: $\frac{100}{III} : \frac{70}{IV} : \frac{62}{V} : \frac{15 \div 109}{VI}$. Rhin. on III: 4, 4.

Colour. Dull pale green, antennae and legs ginger-yellow. Cauda and siphunculi green.

Al. viv. fem. As in apt. viv. fem., but cauda acute, siphunculi thinner. IIIrd ant. segment with 15–24 rhinaria in a row.

Measurements of one specimen. Length of body: 2·69 mm.; length of ant.: 3·79 mm.; length of siph.: 0·80 mm.; length of cau.: 0·49 mm. Prop. of ant. segments as: $\frac{100}{III} : \frac{70}{IV} : \frac{62}{V} : \frac{15 \div 109}{VI}$. Rhin. on III: 16, 17.

Food-plants. *Geranium robertianum, G. molle.*

Localities. England: Bath, 8.viii.'34 (on *G. robertianum*); Holland: Uithuizen, 8.vii.'32 (on *G. molle*) (*D.H.R.L.*).

Notes. Resembles *A. onobrychidis*, B.d.F. and *A. loti*, Theo., but differs in the number of rhinaria and several very small characters. It lives on both plants on the flowerstalks and the calyces, usually in small colonies of one mature and several young specimens. Where it occurs it is very common. The species is distinct from *Acyrthosiphon pelargonii*, Kalt., which has rhinaria along the whole length of the IIIrd ant. segment in apt. and relatively shorter cauda.

Cotypes. Uithuizen, *Geranium molle*, 8.vii.'32 in the author's collection.

3. *Saltusaphis ornatus*, Theo.

Of this species only the al. viv. fem. has been described (Theobald, **3**: 65–67). I obtained a number of apt. viv. females and one alate female from *Carex* sp., growing along the Canal in Bath, Somerset. A description of this curious insect is as follows.

Apt. viv. fem. Body completely flat, narrow-elliptical. Tergum sclerotic, with an area on each segment on the pleura coloured brown, so that there is a pale line along the spine and the margins of the body. Tergite divided as follows: Head; prothorax; mesothorax ÷ metathorax first abd. segment; IInd ÷ IIIrd ÷ IVth ÷ Vth ÷ VIth (siph. !) segment, VIIth segment, VIIIth segment and cauda. Body hairs on tergum mushroom-shaped, margin of the flattened top of the hairs dentated; a longer, fan-shaped hair on the margin of VIth segment, just behind the siphunculi. Posterior margin of VIIth segment rectangular, one long hair exactly on the angle. VIIIth segment trapezoid-shaped, hind margin with two lobes, which are about as broad as long and as the distance between them, on each side with 3 long spines, the lobes each with 2 hairs. Head rather narrow, front with two pairs of spines. Siphunculi very short, on the posterior half of VIth segment. Cauda knobbed, with 12–14 hairs. Genital plate lobed, the lobes with long spines. Antennae with rings of minute spines, ant. hairs normal, slightly shorter than diameter of IIIrd segment. Proc. terminalis usually very little shorter than base of VIth segment. Eyes without triommatidion, but with one facet isolated, on the upper-side on the posterior half. Rostrum very short, reaching to anterior margin of mesothorax, apical segment nearly semicircular.

Colour yellow, with two parallel brown longitudinal stripes.

Measurements of one specimen. Length of body: 1·85 mm.; max. width: 0·60 mm.; length of ant.: 1·24 mm. Prop. of ant. segments: $\frac{100}{III} : \frac{70}{IV} : \frac{62}{V} : \frac{55 \div 55}{VI}$.

The alate viv. fem. is well described by Theobald, *loc. cit.*, but a few notes may be of interest.

Al. viv. fem. The dusky patches in Theobald's description are sclerotic brown areas, the uncoloured part of the abdomen is not sclerotic. My specimen has 9 and 11 rhinaria on IIIrd ant. segment, proc. term. equal to base. Tibiae with rings of minute spines, like the antennae. Isolated ommatidion as in apterae.

Food-plant. *Carex* sp. (*C. riparia* or *C. acutis*).

Localities. England: Bath, 12.viii.'34 (Miss *A. Robinson* & *D.H.R.L.*); Holland: Beugenum, Limburg, Sept. 1931 (*D.H.R.L.*).

Biology. Lives on the underside of the leaves, nearly on the apex of the leaf. The mature apterae occur, parallel with the leaf margin, with, sometimes, one or two larvae in a line behind them. At the slightest shock to the leaves, the adults drop immediately, followed by the larvae.

4. *Periphyllus* **templi,** sp. n.

Apt. viv. fem. Body pyriform, largest diameter on posterior half, covered with very long hairs of various length. Integument without long sclerotic areas. Antennae about $\frac{4}{7}$ of length of body, inner side with very long hairs (which are up to 5 times as long as max. diameter of IIIrd ant. segment), outside with shorter hairs. Legs also with very long hairs outwards and shorter hairs inwards. All hairs, with exception of those on underside of body and those on the inside of legs either knobbed, stunted, or sometimes even very slightly furcated. Processus terminalis about 5–6 times as long as base of VIth segment. Siphunculi coniform to the reticulated area, with trumpet-shaped apex. Apical $\frac{1}{4}$–$\frac{2}{5}$ reticulated. Cauda distinctly knobbed, rather long. Apical segment of rostrum about $\frac{4}{5}$ length of sec. joint of hind tarsi.

Measurements of one specimen. Length of body : 3·25 mm.; length of ant. : 2·65 mm.; length of siph. : 0·30 mm.; length of cau. : 0·16 mm. Prop. of ant. segments : $\frac{100}{III} : \frac{63}{IV} : \frac{56}{V} : \frac{19 \div 99}{VI}$.

Food-plant. Acer campestre, Kingsdown, Kent, 9.vi.'34 (*R. G. Temple*).

Notes. This is a quite abnormal species. The knobbed cauda separates it from any of the hitherto described *Periphyllus*, whereas the structure of the hairs is only known in some *Chaitophorus*. The proportion between base and processus terminalis of VIth ant. segment is about the same as in *P. lyropictus*, Kessler, which, however, is quite distinct.

Cotypes in the author's collection.

5. *Aphis sambuci*, L.

The biology of this species has only recently been discovered. Börner found the exules on the roots of *Rumex*, and I verified this in 1932 by finding them on the roots of *Rumex obtusifolium* in Italy.

Recently I obtained the same exules from the roots of *Dianthus* sp. from Holland and in comparing it with the description of *Aphis wilsoni*, Laing, find them to be identical. Material of *Aphis wilsoni*, Laing, from Poland, received from Dr. E. Judenko, proved to be the same. It seems to me therefore that *A. wilsoni*, Laing, is either a synonym of *A. sambuci*, L., or must be considered a biological race, which, according to Theobald (**3** : 298–399), forms oviparae on *Dianthus*; this points to hibernation on *Dianthus*.

6. *Dactynotus tanaceticola*, Kalt.

The only time this insect was found in England seems to have been by Buckton. The material in the British Museum (Nat. Hist.) does not allow one to decide whether it was really this species with which he dealt. I found it plentiful on the basal leaves of *Achillea millefolium* at Bath in July and August 1934. This was the subsp. *achilleae*, Koch.

7. *Paramyzus heraclei*, Börner.

The description of this species is very short and incomplete. I add a short description from material found at Bath.

Apt. viv. fem. Body elongated oval, rather swollen, with few hairs. Frontal tubercles strongly developed, innerside strongly bulging inwards, frontal furrow rectangular. Head and frontal tubercles finely imbricated. Siphunculi very thin, largest diameter on second half, imbricated as in *Cavariella*. Cauda about $\frac{1}{3}$ length of siphunculi, with 5–7 hairs. Antennae longer than body, with 5–13 rhinaria on basal half to one-third. Antennal hairs $\frac{1}{5}$ diam. of IIIrd segment in length. First tarsal joints of all legs with 3 hairs.

Colour. Pale yellowish-white to whitish-yellow. Legs and antennae colourless.

Measurements of one specimen. Length of body : 1·54 mm.; length of ant. : 1·86 mm.; length of siph. : 0·36 mm.; length of cau. : 0·14 mm. Prop. of ant. segments : $\frac{100}{III} : \frac{68}{IV} : \frac{60}{V} : \frac{28 \div 121}{VI}$. Rhin. on III : 7, 8.

Fundatrix. Much like the above. Siphunculi cylindrical to slightly swollen. IIIrd ant. segment with 2–6 rhinaria only. Proc. terminalis less than 4 times as long as base of VIth segment.

Al. viv. fem. Abdomen with some irregular black sclerites on Ist segment and a black sclerite including the pleura from IInd to IVth segments. Vth and VIth segments with narrow transverse sclerites. Large marginal sclerites present. Siphunculi pale, slightly darkened, at distal half a little swollen, very thin. Cauda acute, triangular, with 4–5 hairs. IIIrd ant. segment with 28–38 protruding rhinaria, IVth with 12–18, Vth with 0–3 rhinaria. Venation of wings often abnormal, the furcation between M_1 and M_2 ("second furcation") often quite near apex of wing, so that the media is sometimes furcated once only. M_1, M_2, M_3 and Cu_1 slightly bordered with dark brown, Cu_2 with a broad black border.

Colour. Body pale citron yellow; head, thorax and abd. sclerites as given above dark brown. Antennae black, legs ginger-yellow with black femora (with exception of base of fem.). Cauda and siphunculi as body or slightly darker.

Measurements of one specimen. Length of body : ÷ 1·69 mm.; length of ant. : 2·34 mm.; length of siph. : 0·26 mm.; length of cau. : 0·11 mm. Prop. of ant. segments : $\frac{100}{III} : \frac{72}{IV} : \frac{57}{V} : \frac{29 \div 130}{VI}$. Rhin. on III : 27, 30; on IV : 13, 16; on V : 0·1.

Oviparae. Very much like the apt. viv. fem. Hind tibiae slightly swollen, with numerous olfactory organs. Colour as in apt. viv. fem.

Male (from one specimen). Alate. Each abdominal segment with a spinal sclerite, two pleural sclerites and two marginal sclerites. IIIrd segment of antennae with 33–35 large, protruding rhinaria, IVth with 17, Vth with 10. Genitalia strongly developed. Wings, etc., as in al. viv. fem.

Food-plant. Heracleum sphondylium.

Localities. Holland : Deventer, May 1929, Lith, Nov. 1929 (sexuales); England : Bath, Aug. 1934 (Miss *Robinson & D.H.R.L.*), Bennekom, Aug. 1934.

Notes. As a rule present in large numbers, wherever it occurs, but apparently rather local. Alate viv. females seem to be still more rare. It lives on the underside of the basal leaves, being less common on the apical ones.

The genus is very closely allied to *Neotoxoptera*, Theo., which Börner treats as a synonym of *Fullawayella*, Del Guerc. According to Fullaway (*in litt.*), the type of the latter genus, *M. kirkaldyi*, Full., is *Idiopterus nephrolepidis*, Davis, and *Fullawayella* is a synonym of *Idiopterus*, Davis.

The differences between *Neotoxoptera* and *Paramyzus* are :

Neotoxoptera.	*Paramyzus.*
Apterae without sec. rhinaria.	Apt. with sec. rhinaria.
2nd tarsal joint of hind legs with 2 hairs.	2nd tarsal joint of hind legs with 3 hairs.

I am convinced that *Paramyzus* must be regarded as a subgenus of *Neotoxoptera*, Theo.

8. *Doralis* **corniella,** sp. n.

Apt. viv. fem. (from *Epilobium angustifolium*). Body broadly oval, rather short, with long, fine hairs. Rather small but finger-shaped tubercles on prothorax and abdominal segments I and VII. Abdomen with small lateral sclerites and two distinct postsiphuncular

sclerites (moreover as usual with a double row of dark pleural " Muskelplatten "). VIIIth abd. segment with 6–8 hairs. Antennae $\frac{3}{4}$–$\frac{7}{8}$ length of body, without sec. rhinaria. Antennal hairs very thin and long, varying in length from $1\frac{1}{3}$–$2\frac{1}{6}$ times as long as diameter of IIIrd segment. Siphunculi short, sclerotic, very strongly curved outwards, so that often they form nearly a quarter of the circumference of a circle; flange small. Cauda sclerotic, elongated triangular, blunt, with 6–9 hairs. Legs normal.

Colour. Brownish-red, covered with a purple bloom, which vanished in alcohol. Siphunculi and cauda black, legs and antennae pale brown-red.

Measurements of one specimen. Length of ♂ body : 2·04 mm.; length of ant.: 1·64 mm. Siphunculi: distance between flange and base, on inside of curve: 0·16 mm.; on outside of curve: 0·21 mm. Cauda 0·16 mm. Prop. of ant. segments: $\frac{100}{III} : \frac{64}{IV} : \frac{56}{V} : \frac{(27 \div 72)}{VI}$.

Al. viv. fem. (from *Epilobium*). Abdomen on each segment often with an incomplete spinal sclerotic crossbar; especially on the first four abdominal segments the bar may be split up into isolated, paired sclerites, sometimes even to such an extent that a few segments may be without spinal sclerites. Lateral sclerites rather large. IIIrd ant. segment with 15–20 large rhinaria on one side. Siphunculi less strongly curved than in apterae. Wings normal, second fork of media often close to margin of wing.

Colour. " Nearly black."

Measurements of one specimen. Length of body : 2·19 mm.; length of ant.: 1·53 mm.; length of siph.: 0·16 mm.; length of cau.: 0·15 mm. Prop. of ant. segments: $\frac{100}{III} : \frac{65}{IV} : \frac{51}{V} : \frac{(27 \div 70)}{VI}$. Rhin. on III: 16, 19.

Apterae on *Cornus alba* (Spring). Antennae more sclerotic, proc. term. usually less than $2\frac{1}{4}$ times as long as base of VI. Siphunculi not so strongly curved. Tubercles, hairs and sclerotisation of abdomen as in apt. from *Epilobium*.

Al. viv. on *Cornus alba* (Spring). Exactly as in al. form from *Epilobium*, but proc. term. comparatively slightly shorter.

Food-plants. 1, *Cornus alba* and 2, *Epilobium angustifolium*.

Localities. Wageningen, 21.v.'30, and Bennekom, June 1933, on 1; Bath, Somerset, 22.vii.'34, on 2.

Biology. In spring this species forms a very typical deformation of the tip of the buds of *Cornus alba*. Observations showed that the galls were soon left by winged fundatrigeniae. I could not find out where they went to. In Bath I collected a typical *Doralis*, living on the underside of the lower leaves of *E. angustifolium*, situated in rows along the midrib of the leaves. I can find no differences between the two on comparing them, and therefore consider them identical. This of course has to be proved by experiment. Hypothetically the biology is then a migration (not polyphagism) between *Cornus alba* and *Epilobium angustifolium*.

Cotypes. Bath, 21.v.'34, in the author's collection.

9. *Hyperomyzus* **pallidus,** sp. n.

Apt. viv. fem. Body oval, rather swollen with very short hairs. Integumentum without any sclerotisation. Skin of frontal tubercles, first two antennal segments and the base of IIIrd faintly imbricated. Antennae shorter than body, only the very apices of the segments coloured brown. IIIrd ant. segment with 7–20 small rhinaria on one side, nearly in a row, which varies in length from half the segment to the whole length of the

IIIrd segment. IVth segment without rhinaria. Antennal hairs very short, faintly knobbed, curved inwards, those on IVth about half as long as the smallest diameter of this segment, *i.e.* just before the apex. Siphunculi $\frac{2}{1^{2}3}$ length of body, pale with a brown apex; just before the flange some striae, forming an indistinct reticulation. Cauda about $\frac{2}{3}$ length of siphunculi, with 7–8 hairs; apex blunt. First tarsal joints normal (all with 3 hairs).

Colour. Ivory white. Legs and antennae as body, articulations brown. Cauda and siphunculi colourless, siphunculi with brown apex.

Measurements of one specimen. Length of body: 2·75 mm.; length of ant.: 2·58 mm.; length of siph.: 0·46 mm.; length of cau.: 0·31 mm. Prop. of ant. segments: $\frac{100}{III} : \frac{57}{IV} : \frac{54}{V} : \frac{18 \div 120}{VI}$. Rhin. on III: 9 (other antenna missing).

Al. viv. fem. The only specimen that I took had no antennae, so that a complete description is impossible. It differs from those of *H. lactucae*, L., in the absence of a less-sclerotic area in the front half of the central abdominal spot. The siphunculi are here black, the cauda white, while in *H. lactucae*, L., they are green when alive and ginger-brown in macerated specimens, with a darker apex.

Food-plant. Sonchus arvensis, on underside of the leaves.

Localities. Rather common at Bath, along the canal, 28.vii.'34; also in Holland in the north, August 1932.

This is the third European species of a very difficult group in this genus. They may be separated as follows:

1(2). IIIrd and IVth segment in apterae with rhinaria. On *Lampsana communis* . . . . . *H. lampsanae*, Börner.
2(1). IIIrd segment with rhin. only in apterae.
3(4). Hairs on IVth ant. segment approximately equal to smallest diameter of IVth segment, *i.e.* just before the articulation with Vth. Apterae green. Alatae with a less sclerotic, transparent cross-area in the anterior half of the central dorsal spot, and green siphunculi when alive, ginger-brown siph. when macerated. On *Sonchus oleraceus* . *H. lactucae*, L.
4(3). Hairs on IVth segment half as long as smallest diameter. Apterae ivory white. Central dorsal spot in alatae completely sclerotic, siphunculi black. On *Sonchus arvensis* . . . . . *H. pallidus*, H.R.L.

10. *Macrosiphoniella* **usquertensis,** sp. n.

Apt. viv. fem. Body oval. Body hairs rather long (those on VIth abd. segment about $2\frac{1}{2}$ times diameter of IIIrd ant. segment) on usually indistinct sclerites. Antesiphuncular sclerite present, but sometimes indistinctly sclerotised. Frontal tubercles well developed. Antennae $1\frac{1}{20}$–$1\frac{1}{5}$ times as long as body. IIIrd segment on basal $\frac{1}{3}$–$\frac{1}{2}$ with 5–11 (average 8·1) rhinaria. Antennal hairs up to $1\frac{1}{5}$ times as long as diameter of IIIrd segment. Rostrum reaching to just past metacoxae, apical segment about $\frac{7}{8}$ sec. joint of hind tarsi. Siphunculi slender, tapering from base to apex, about $\frac{1}{7}$ length of body, reticulated over distal $\frac{2}{5}$–$\frac{3}{7}$. Cauda very long, about 1–$1\frac{1}{4}$ times as long as siphunculi, with 14–20 hairs. Legs long, first tarsal joints of all legs with 3 hairs.

Colour. Dirty greyish, liver-coloured, covered with waxy exudation, which is absent on a spindle-shaped spot from segment III–VI and a spot in front of each siphunculus. These spots are liver-coloured. Antennae black, IIIrd segment and basal half of IVth pale yellow. Femora black with yellow base, tibiae yellow with black apices. Siphunculi and cauda black.

Measurements of one specimen. Length of body : 3·00 mm.; length of ant. : 3·13 mm.; length of siph. : 0·48 mm.; length of cau. : 0·54 mm. Prop. of ant. segments : $\frac{100}{III} : \frac{78}{IV} : \frac{63}{V} : \frac{(26 \div 92)}{VI}$. Rhin. on IIIrd ant. segment : 8, 10.

Oviparous female. Much as in apt. viv. fem. Sclerites slightly more visible. Antennae approx. equal to length of body, IIIrd segment with 3–10 rhinaria on basal $\frac{2}{3}$. Siphunculi reticulated on distal $\frac{1}{3}$ only, sometimes even less; more slender than in viviparous form. Hind tibiae very distinctly swollen, with a great many olfactory organs.

Colour. As in apt. viv. fem., but more red, hind tibiae pale brown.

Measurements of one specimen. Length of body : 2·53 mm.; length of ant. : 2·63 mm.; length of siph. : 0·33 mm.; length of cau. : 0·38 mm. Prop. of ant. segments : $\frac{100}{III} : \frac{77}{IV} : \frac{66}{V} : \frac{(30 \div 107)}{VI}$. Rhin. on IIIrd ant. segment : 4 + 5.

Alate male. Body narrow; abdomen with distinct lateral sclerites, also large sclerites at bases of spinal hairs. Antennae $1\frac{1}{7}$–$1\frac{1}{4}$ times as long as body, IIIrd segment with 30–40 rhinaria, IVth with 3–11, Vth with 5–9. Siphunculi short, cylindrical, $\frac{1}{11}$–$\frac{1}{12}$ length of body, reticulated over distal $\frac{1}{4}$–$\frac{1}{3}$.

Cauda as long as siphunculi. Genitalia strongly developed.

Colour. Unknown.

Measurements of one specimen. Length of body : 2·45 mm.; length of ant. : 2·87 mm.; length of siph. : 0·20 mm.; length of cau. 0·19 mm. Prop. of ant. segments : $\frac{100}{III} : \frac{75}{IV} : \frac{69}{V} : \frac{(27 \div 91)}{VI}$. Rhin. on IIIrd segment 31, on IVth 4, on Vth 7 (one antenna broken).

Host-plant. Achillea millefolium.

Localities. England : Bath, Somerset; Holland : Usquert, Gron.; and Wageningen, August 1934.

Biology. Lives the whole year on underside of the basal leaves of *Achillea*; the colonies are usually found on the apex of the leaves which turn brownish-yellow at first and afterwards die and turn brown. Alatae are rare throughout the summer and were not found. Sexuales appeared in the first week of October.

Notes. It seems possible that this species has been confused with *M. millefolii*, de Geer, which it resembles superficially. The latter is easily distinguished by the larger number of hairs, the sclerotisation of legs and antennae and the rhinaria on the IIIrd antennal segment, which are much more numerous.

Cotypes. Holland : Usquert, Gron., in the author's collection.

ON THE IDENTITY OF FOUR SPECIES OF RHOPALOCERA DESCRIBED BY JOHANNES GISTEL IN 1857

By Francis Hemming, C.B.E., F.R.E.S.

In 1857 Johannes Gistel published a paper entitled *Achthundert und zwanzig neue oder unbeschriebene wirbellose Thiere charakterisirt von Doctor Johannes Gistel.** This paper was published at Straubing in a work entitled *Vacuna* which appears to be extremely scarce. The only copy of it in Great Britain is, so far as I know, that in the library of the Linnean Society of London. Through the courtesy of Dr. Walther Horn, I have also seen a separately-paged separate of Gistel's paper, now in the library of the Deutsches Entomologisches Museum of Berlin.

Gistel's paper seems to have been unknown to his contemporaries and to have been overlooked by his successors. As a result, therefore, the new names that he proposed have never been brought into use. In the Rhopalocera there are four of these names, all of which are valid and are older than the names now in use for the insects in question. The synonymy of these species is as follows :—

Lycaenidae.

Everes hügelii (Gistel, 1857).

Lycaena hügelii, Gistel, 1857, *Vacuna* **2** (2) : 605 (p. 93 in separate).
Lycaena dipora, Moore, 1865, *Proc. zool. Soc. Lond.* **1865** : 506, pl. 21, fig. 8.

Gistel's description, which is clearly based upon a ♂ of the species now known as *Everes dipora* (Moore), reads as follows :—

Lycaena hügelii. L. alis ♂ supra intensius obscuriorique-caeruleis, subtus valde obscurioribus, vitta rubello-fusca margine extern. alar. posticar. latiori obscuriorique.
Caschmir. L. amyntas fabr. valde affinis.

Pieridae.

Gonepteryx mahaguru (Gistel, 1857).

Rhodovera [sic] *mahaguru*, Gistel, 1857, *Vacuna* **2** (2) : 605 (p. 93 in separate).
Gonepteryx zaneka, Moore, 1865, *Proc. zool. Soc. Lond.* **1865** : 493, pl. 33, fig. 18.

Gistel's description, which is based on a ♀ of the insect described by Moore in 1865 as *Gonepteryx zaneka*, reads as follows :—

Rhodovera [sic] *mahaguru.* R. alis integerrimis angulatis flavis, singulis puncto majori intensius flavo, subtus ferrugineo; alis anticis margine externo profundius excisis; apice alar. post. margine post. breviore et truncato, dentibus duobus minutissimis margine interno.
Himalaya.

This insect is conspecific with *Gonepteryx aspasia*, Ménétriés, 1858. As Gistel's name *mahaguru* has a year's priority over *aspasia*, Ménétriés, it must in future be adopted as the name for the collective species. The synonymy of the subspecies of this species is therefore now as follows :—

* The above is the title given on the half-title page that precedes the first page of this paper. On the first page of the paper itself, the title is given as *Achthundert und zwanzig neue und unbeschriebene Insekten.* Below this title appear the following words in brackets : *Geschrieben zum grössten Theile in München am 4 Januar* 1838.

Gonepteryx mahaguru (Gistel, 1857).

ssp. *mahaguru* (Gistel, 1857) (= *zaneka*, Moore, 1865). N.W. Himalaya.
ssp. *zanekoides*, de Niceville, 1897. South Chin Hills, Upper Burma.
ssp. *alvinda* (Blanchard, 1871). Mou-pin.
ssp. *acuminata*, Felder & Felder, 1862. *In montibus prope* Ning-po.
ssp. *aspasia*, Ménétriés, 1858. Montagnes de Chingan jusqu'à Khokhtsir.
ssp. *niphonica*, Verity, 1909. Japan, Fusi-yama.
ssp. *taiwana*, Paravicini, 1913. Formosa.

PAPILIONIDAE.

Papilio machaon annae, Gistel, 1857.

Papilio annae, Gistel, 1857, *Vacuna* **2** (2) : 603 (p. 91 in separate).
Papilio sikkimensis, Moore, 1884, *J. Asiat. Soc. Beng.* Pt. 2, **53** (2) : 47.

Gistel's description, which is clearly based upon a specimen of the subspecies of *Papilio machaon*, Linn., hitherto known as ssp. *sikkimensis*, Moore, reads as follows :—

Papilio annae. P. alis caudatis concoloribus intensius obscuroflavis, venis [sic] nigris latioribus, limbo latiusculo nigro lunulis nigris, angulo ani nigro.
Hymalayanae Alpes. Machaoni proxim. Uxori dilectae.

Graphium sarpedon protensor (Gistel, 1857).

Papilio protensor, Gistel, 1857, *Vacuna* **2** (2) : 602 (p. 90 in separate).
Papilio sarpedon, Linn., var. *semifasciatus*, Honrath, 1888, *Ent. Nachr.* **14** : 161.

Gistel's description of his *Papilio protensor* reads as follows :—

Papilio protensor. P. alis protensiorisus, dente quinto multo prolongato; alarum fascia transversa media angustiori, laetius viridi.
China, Java, etc. P. sarpedon affinis.

The above description does not fit the race of *sarpedon*, Linn., found in Java, but it corresponds very well with the race of that species found in South-East, Central, and West China, named *semifasciatus* by Honrath in 1888.

AN INTERESTING NEW GENUS OF HOUSE CRICKET (ORTH., GRYLLIDAE)

By L. CHOPARD.

WHEREAS in the North of Europe we only know the common house cricket (*Gryllus domesticus*, L.), several species of insects belonging to this group are known to frequent human dwellings in warmer countries. Such is the case with species of the genus *Gryllomorpha* in the Mediterranean region, with different species of *Gryllus*, *Gryllodes* and allied genera in tropical Africa and Asia, with several species of *Phaeophilacris* in Eastern Africa, etc. The insects described in this note, however, belong to a subfamily composed of forms that usually live far from houses either among dead leaves in forests or on shrubs. Moreover, their general habitus is somewhat different from the other species of the subfamily on account of their longer and thinner legs which suggest an insect that runs quickly as this Gryllid must certainly do.

Eucycloptilum, gen. n.

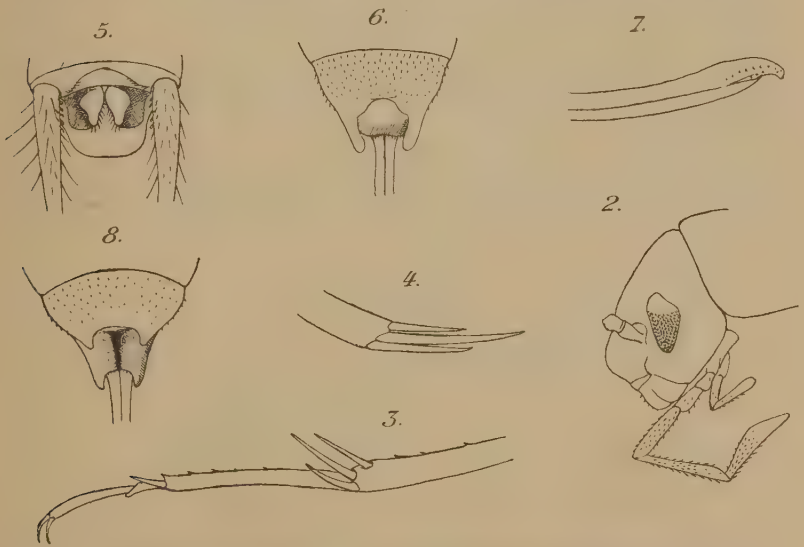
Both sexes apterous; frontal rostrum very wide, rounded. Eyes presenting a superior part, distinctly separated from the inferior one, quite smooth without facets. Legs long; posterior metatarsi very long non-serrulated above.

Genotype: *Eucycloptilum longipes*, sp. n.

This genus is close to *Cycloptiloides*, Sjöst., but differs from it in both sexes being apterous, the pronotum not at all produced backwards in the male. The division of the eyes into two parts, which are morphologically and probably physiologically quite different, is a most interesting feature to which I already called attention elsewhere (1934, *Bull. Soc. Hist. nat. Afr. Nord.*, **25** : 109–112). This character has been noticed by myself in *Eremogryllodes seurati* and by Miram in the species of the genus *Philobothrium*. These species belong to a different subfamily from the present genus; they live in the desert parts of Africa and Asia, and the *Philobothrium* at least present a very peculiar mode of living in the holes of small rodents. Although these conditions seem quite different from those in which *Eucycloptilum* has been found, there may be some converging character due to environmental features such as semi-darkness or humidity.

Eucycloptilum longipes, sp. n.

Apterous, rufo-testaceous, partly covered with brown scales. Head as wide as pronotum in front; frontal rostrum very wide, rounded, non-divided; face pale yellow, the



Figs. 2–8.—*Eucycloptilum longipes*, sp. n.; fig. 2. head of male, side view; fig. 3. apex of posterior tibia and tarsus, external face; fig. 4. internal apical spurs of posterior tibia; fig. 5. apex of abdomen of male; fig. 6. seventh sternite and subgenital plate of female; fig. 7. apex of ovipositor; fig. 8. seventh sternite and subgenital plate of female of *Eucycloptilum veali*, sp. n.

facial protuberance rather strongly projecting. Eyes rather small, nearly pointed below, their surface almost flat, superior fourth whitish, smooth, without facets. Palpi yellowish; maxillary ones long, particularly the 4th joint, the 5th one a little expanded and strongly truncated at apex. Antennae slender, yellowish.

Pronotum a little wider than long, feebly narrowing in front; anterior margin slightly convex, posterior margin a little concave, especially in the male. Mesonotum slightly

uncovered in the male. Abdomen rather narrow, abundantly clothed with brown scales above, yellowish ones beneath. Cerci very long.

Legs relatively long and slender. Apex of femora covered with brown scales. Anterior tibiae non-perforated; tarsus nearly as long as tibia, the metatarsus longer than the other two joints together. Intermediate legs of the same shape as the anterior ones. Posterior femora moderately swollen; tibiae a little shorter than the femora, serrulated on their superior margins; metatarsi very long with denticles so fine that they are lost amongst the pubescence.

♂. 10th abdominal tergite transverse with posterior margin feebly concave; superior anal valves completely bent down, brown, covered with spinelets; inferior anal valves bearing a voluminous wide process, the superior part of which is whitish and seems membranaceous; the inferior part lays on the superior valve and is covered like it with a clothing of fine spinules. Subgenital plate very large with posterior margin widely rounded.

♀. Anal valves plain and simply covered with hairs; 7th abdominal sternite large, presenting at apex two small lateral lobes which frame the subgenital plate; this plate is rather strongly chitinised, brownish, separated from the sternite by a membranous furrow. Ovipositor moderately long, rather strong, with apical valves not widened, the superior ones a little curved downwards, presenting a row of small denticles.

Length of body ♂ 7 mm., ♀ 7·5 mm.; post. fem. ♂ 5 mm., ♀ 5·8 mm.; post. tib. ♂ 4 mm., ♀ 4·7 mm.; ovipositor 4·5 mm.

Type: S.W. Africa: Windhoek (*H. M. Veale*), July 1933, 1 ♂; same locality, 1 ♀ allotype ("numerous indoors"). Types in the British Museum (Natural History).

Eucycloptilum veali, sp. n.

Extremely close to the preceding, a little larger, but differing chiefly in the shape of the 7th abdominal tergite and of the subgenital plate; the sternite is very large, with posterior margin simply concave, without lateral lobes; the plate itself is more strongly

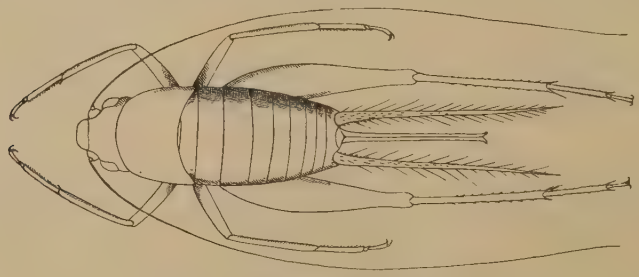


Fig. 1.—*Eucycloptilum veali*, sp. n., ♂.

projecting than in *longipes*, with posterior margin strongly concave, the median line deeply furrowed. Ovipositor presenting the same general shape, but the apical superior valves wider, a little flattened at apex and bent outwards.

Length of body 8·5 mm.; post. fem. 6·5 mm.; ovipositor 6 mm.

Type: S.W. Africa: Windhoek (*H. M. Veale*), July 1933, 1 ♀.

NEUE EXOTISCHE THYSANOPTEREN

Von Dr. H. Priesner.

Thripidae.

Parabaliothrips, gen. n.

Fühler 8-gliedrig, Stylus 2-gliedrig; Sinneskegel gabelig. Kopf gross (vgl. *Baliothrips*, Uz.), viel länger und nur wenig schmäler als der Prothorax, mit 4 gut entwickelten Anteokularborsten, 2 langen, weit nach hinten gerückten Interocellarborsten und zwei langen Postokularborsten. Kopfseiten gerade, nicht gewölbt. Maxillarpalpen 3-gliedrig, beim ♂ bisweilen 2-gliedrig. Prothorax kurz und stark quer, mit 2 Paar langen Hintereckenborsten; Vordereckenborsten zwar besser entwickelt als bei *Taeniothrips* und *Isochaetothrips*, aber nicht halb so lang als die Hintereckenborsten. Beine ohne Besonderheit, die Tibien stark beborstet. Vorderflügel wie bei *Isochaetothrips*, beide Adern mit kontinuierlicher Borstenreihe (nur die letzte Borste der Hauptader von den übrigen etwas abgerückt). Abdomen ohne Besonderheit. ♂ am 9. Tergit, in der Mitte, mit 2 dunklen Dörnchen.

Typ. gen. *Parabaliothrips takahashii*, sp. n.

Ob dieser Thysanopteren-Typus der Thripiden als Genus oder Subgenus bestehen bleiben wird, kann noch nicht gesagt werden; er musste als Genus in die Wissenschaft eingeführt werden, da er der Flügelader-Beborstung halber zu *Isochaetothrips* zu stellen wäre, wo er aber nicht hingehört. Habituell passt die neue Gattung wegen der Kopfform zu *Baliothrips* oder *Euchaetothrips*, ist aber durch die Fühlergliederzahl, die Tibienbeborstung, Flügeladerbeborstung u.s.w. gänzlich verschieden. Verwandtschaftlich steht die neue Form sehr nahe *Frankliniella*, die Vordereckenborsten des Pronotums sind aber verh. viel kürzer, als bei allen Formen dieser artenreichen Gattung, und die ♂♂ haben Dörnchen am 9. Tergit.

Parabaliothrips takahashii, sp. n.

♀: Dunkelbraun, rotes Pigment im Körper vorhanden, Ocellarpigment rot. Das 1. und 2. Fühlerglied wie der Kopf gefärbt, die folgenden einfarbig hellgelb, nur das 3. Glied an der Basis schwach getrübt, das 7. und 8. undeutlich getrübt, das 6. Glied hellgelb. Tibien dunkel, Vordertibien hellgelb, am Grunde dunkel. Tarsen hellgelb. Borsten am Körper dunkel. Flügel an der Basis und an der Spitze hyalin, in der Mitte stark getrübt, an der *äussersten* Basis wieder etwas getrübt.

Kopf gross, von den Augen an 140, im Ganzen 160 μ lang, an den Augen 168–170 μ breit. Interantennalfortsatz, von oben gesehen, dreispitzig; Augenlänge lateral 68 μ, dorsal 76 μ; Augen deutlich beborstet, Facetten grob. Die Ocellen bilden ein stumpfwinkeliges Dreieck. Anteocellarborsten gut entwickelt, in einem flachen Bogen vor den Ocellen, das äussere Paar von den Augen 8 μ abstehend. Interocellarborsten sehr lang, ihr Abstand 20–26 μ, weit hinten gelegen, innerhalb der hinteren Ocellen, etwa an der Tangente gelegen, die die hinteren Ocellen von hinten berührt. Postokularborsten in drei sehr verschieden entwickelten Paaren: die äussere, an den Wangen gelegene Borste nach vorn gerichtet (etwa 20 μ); die nächste nach innen sehr lang, mindestens 60 μ, nach hinten gerichtet; die dritte rudimentär, in derselben Horizontale wie die 2., weit hinter den paarigen Ocellen gelegen. Querwellen des Scheitels regelmässig, aber wenig markiert, Wangen daher nur sehr zart gekerbt. Mundkegel kurz, Maxillarpalpen 3-gliedrig. *Fühler* kurz, aber schlank, das 2. Glied am Grunde stark geschnürt, das 3. hinter dem dünnen Stielchen mit einer kleinen Verdickung, wie das 4. am Ende etwas geschnürt, das 5. in der Form etwa wie bei *Taeniothrips frici*, Uz., das 7. und 8. in der Länge wenig voneinander verschieden, beide ziemlich gestreckt; Masse vom 2. Gliede an: ? (25), 56(17), 48–50(17).

40–42(15), 46(17), 12(8), 14(6) μ. Fühlerborsten schwächer und lichter als bei der folgenden Art, die längste Borste des 3. Gliedes 36 μ. Pronotum etwa 105–108 μ lang, 188 μ breit, Seiten gleichmässig schwach gerundet. Vorderecken mit 4–5 Paar Börstchen, von denen das längste 28 μ misst; *Borsten auf der Scheibe äusserst spärlich*: 2 Paar Hintereckenborsten gut entwickelt, 76–88 μ, innerhalb derselben sind 3 Paar Marginalborsten, von denen das innerste, längste etwa 28 μ misst. Mesothoraxbreite 250 μ. Flügellänge etwa 760 μ. Flügelborsten gut entwickelt; auch die Vorderrandfransen lang. Costa mit etwa 20, Hauptader mit 16–17, Nebenader mit 13 Borsten. Beine normal; die Hinterschienen ausser der Innenreihe (6–7) dunkler Stachel-Börstchen (inkl. die zwei Endsporne), mit mehreren äusseren Börstchen, auch unten. Abdomen ohne accessorische Borsten. Kamm des 8. Tergites vollständig, aber aus verhältnismässig weit voneinander getrennten, sehr feinen, kurzen Härchen bestehend. Borsten am 9. Segment kräftig, 96, 140 und 140 μ lang, die dorsalen hingegen sehr zart, die des 10. Segmentes 120 μ lang. Das 10. Segment oben nur bis zur Borsten-Insertionsstelle gespalten. Körperlänge (gedehnt) **1·367 mm. (geschrumpft) 1·07 mm.**

♂: Dem ♀ in der Färbung sehr ähnlich, schlanker. Fühlerglieder vom 3. an: 50–53, 45, 38, 42, 11, 14 μ. Die Trennungslinie zwischen 2. und 3. Maxillartasterglied ist bei manchen Stücken undeutlich. Das 3. bis 7. Sternit mit sehr grossen, breiten, hantelförmigen Vertiefungen. Borsten am Abdomen sehr kräftig, am 9. Tergit stehen zwei etwa 26 μ lange Dornen, seitlich davon, zwei Borsten (74 μ); die längsten Borsten an den Seiten messen 108 μ, die umgeschlagenen Seiten des 9. Tergites tragen eine 55–60 μ lange Dornborste.—**Körperlänge (gedehnt): 1·21–1·29 mm.**

Fundort: Formosa: Kankoo, xi.1930, an *Liquidambar formosana* (*Dr. R. Takahashi*).

Parabaliothrips grandiceps, sp. n.

Diese Form kann ich nicht als Variation der vorigen auffassen, da, neben anderen Unterschieden, die Postokularborsten absolut und relativ kürzer sind als bei voriger, trotzdem sie viel kräftiger gebaut ist als *P. takahashii*.

Färbung dunkler als bei voriger Art, auch das 6. Fühlerglied getrübt, und die Vordertibien fast ganz dunkel, die Flügel wie bei *takahashii* an der Basis und Spitze aufgehellt, an der Basis aber nicht völlig hyalin; an den Fühlern das 1. und 2. Glied wie der Kopf, das 3. am Grunddrittel (mit Ausnahme der aufgehellten subbasalen Ringverdickung), getrübt, das 6., 7. und 8. Glied dunkel, das 6. am Grunddrittel aufgehellt. Borsten schwarz, auch die Borsten an den Beinen, die bei voriger Art zum Grossteil lichter sind. Rotes Pigment ist hier nicht (auch nicht an den Ocellen) zu sehen, doch handelt es sich **vielleicht um ein tot aufgefundenes Stück.**

Kopf (etwas gepresst) von den Augen an 168, im ganzen 192 μ lang, an den Augen 208, hinten 204 μ breit; Augen grob facettiert, stark beborstet. Anteocellarborsten 32–40 μ lang, in einem stärker gekrümmten Bogen als bei vorigem, angeordnet, die äusseren von den Augen 12 μ abstehend. Interocellarborsten sehr lang (76 μ). Stellung ähnlich wie bei voriger Art, sogar etwas hinter der Tangente an die Ocellen 2 und 3 gelegen. Laterale Postokularborsten 35 μ, die zweite (längste) Postokularborste hier nur 44 μ lang, die innerste sehr klein, genau hinter den hinteren Ocellen befindlich. Fühler 328–346 μ lang; Gliederlängen (-breiten): 31(36), 53(29), 69(22), 62(20), 45(15), 49(20), 13(11), 14–15(7) μ; das 2. Fühlerglied mit sehr langen, dunklen Borsten, ebenso das 3. und 4., die längste Borste am 3. Glied misst 50 μ; das 3. Glied wie bei vorigem mit subbasaler Verdickung, das 5. an das 6. breit anschliessend. Pronotumlänge 132. Breite 240 μ. Vorderecken-borsten 35–40 μ lang, Hintereckenborsten 112, die äusseren 132 μ lang, die posteromarginalen Borsten (3 Paare) klein. Mesothorax (etwas gedrückt) 329 μ breit. Flügel 1–1·02 mm. lang, Costa mit 22, Hauptader mit 15 – 1, Nebenader mit 13 Borsten. Die Börstchen auf dem Tibienende schwarz und kräftiger als bei vorigem. Abdomen wie bei vorigem,

die Borsten am 9. Segment 100–108, 184–192, 180–184 μ; am 10. Segment 160 und 150 μ.—Körperlänge (gedehnt): 1·73 mm.

Fundort: 1 ♀, Formosa: Reimei, 7.vii.1933, an *Quercus* (*Dr. R. Takahashi*).

Docidothrips **imitans,** sp. n.

♀: Lichtbraun, Kopf am dunkelsten, braun, Abdomen graubraun, gegen das Ende dunkler, Körperpigment hellorange. Unausgefärbte Stücke sind sicherlich dunkler; Schenkel bis auf die Knie mehr weniger stark getrübt, Tibien und Tarsen hellgelb. 1. und 2. Fühlerglied wie der Kopf, das 3. und 4. hellgelb, das 5. getrübt, aber lichter als die folgenden und am Grunde aufgehellt, 6. bis 8. wie der Kopf gefärbt. Ocellarpigment rot. Flügel stark getrübt, am Grunde hyalin oder fast so. Borsten am Körper dunkel.

Kopf sehr stark quer, an den Augen 152 μ breit, Kopflänge (bis zu den Augen) 104, im ganzen 116 μ; Wangen nach hinten schwach aber deutlich verengt, nicht oder kaum gewölbt; Scheitelrunzeln fein und sehr dicht. Augenbörstchen wenig deutlich, Augen etwa 80 μ lang. Mundkegel kurz. Kopfbörstchen klein, Interocellarbörstchen innerhalb der Tangente an den vorderen und die hinteren Ocellen gelegen, Postokularborsten-Reihe den Hinterrand der Augen fast berührend, die beiden innersten *hintereinander* und hinter den Ocellen gelegen, sodass also zwei Paare Postocellarborsten vorhanden sind. Fühlerlänge 288 μ. Gliederlängen (-breiten): 20(29), 36(25), 45–48(19), 42–45(20), 35–36(15), 50–52(18), 16(8), 32–34(5) μ. Das 1. Glied quer, Seiten stark gerundet, das 3. dünn gestielt, 3. und 4. am Ende nur schwach geschnürt, das 7. länglich, viel gestreckter als bei *D. demonstrans*. Pronotumlänge 145 μ, Breite etwa 208 μ, Scheibe dicht besetzt mit etwa 40 Paaren (einschliesslich d. Anteromarginalborsten) feiner Börstchen, Grund der Scheibe fein quergewellt, der Abstand der Wellen aber viel breiter als auf Kopf und Mesonotum; nur 1 Paar Posteroangularborsten vorhanden (56 μ), kürzer als bei *D. demonstrans*, ausserhalb derselben zwei kleine Börstchen jederseits, innerhalb aber 4–6 Börstchen jederseits. Mesothoraxbreite 295 μ, Flügellänge etwa 0·76 mm. Costa der Vorderflügel mit etwa 30 dünnen, fast haarartigen Borsten, Hauptader mit 11–13 basalen, und 2 distalen, Nebenader mit 12–14 Borsten. Abdomen mit Microsetulae besetzt, die vorderen Tergite nur seitlich mit Kamm, das 8. mit vollständigem Kamm, der aus langen, aber wenig dicht stehenden Elementen besteht. Die Zahl der Hinterrandborsten der Sternite ist grösser als gewöhnlich, nämlich 6–7 Paare von unregelmässiger Länge (so am 6. und 7. Segment); Borsten am 9. Tergit dorsal etwa 56 μ, die am Hinterrand 145–160 μ, am 10. Segment 152–160 μ; das 10. Segment oben bis zur Basis gespalten.—Körperlänge (sehr stark gedehnt): 1·4 mm.

♂: Unbekannt.

Fundort: Formosa: Kuraru, Koosun, 30.vii.1931, in Blüten von *Psidium* (*S. Minowa*).

Diese Art steht dem *D. demonstrans*, Pr., sehr nahe, ist aber sicherlich spezifisch verschieden: durch die Gestalt der Fühler, deren 7. Glied viel länger ist als bei *demonstrans* (10(8) μ), das 8. aber kürzer, sodass dieses etwa doppelt bis dreimal so lang ist wie das 7., während es bei *demonstrans* 5 mal so lang ist; durch die Borsten an den Hinterecken des Prothorax, die bei *demonstrans* 84–88 μ, also viel länger sind; die Börstchen auf der Pronotum-Scheibe sind bei *demonstrans* spärlicher, es sind nur etwa 30 Paare vorhanden. Die Beborstung des Abdomens ist sehr ähnlich, auch hier fehlen die accessorischen Borsten der Sternite und die Marginalborsten sind sehr reichlich; die Borsten des 9. Tergites sind bei *D. imitans* kürzer als bei *D. demonstrans*.

Taeniothrips **cognaticeps,** sp. n.

♀: Schwarzbraun, mit sehr reich entwickeltem roten Pigment, besonders im Thorax; Ocellen rot. Fühler ganz dunkel, schwarzgrau, am 3. Glied das Stielchen, am 4. und 5. Glied der Subbasalring undeutlich etwas aufgehellt, aber nicht hellgelb, die Insertions-

stellen der langen Gabeltrichome am 3. und 4. Glied hell. Mittel- und Hinterschenkel dunkel, Vorderschenkel bedeutend lichter, diffus gelblichgrau, Vordertibien hellgelb, an den Rändern fast bis zum Ende grau getrübt, Mitteltibien etwa im distalen Drittel, Hintertibien am äussersten Ende hellgelb; Tarsen hellgelb. Borsten dunkel. Flügel sehr stark der ganzen Länge nach getrübt.

Kopf, wenn etwas gepresst, nach hinten erweitert, bei normalen Exemplaren *hinter den Augen plötzlich geschnürt, mit dorsaler Querfurche*, Wangen gewölbt; Anteocellarborsten am Innerand der Netzaugen, in der Tangente an den vorderen Ocellus gelegen; Interocellaren einander sehr genähert, etwa im Zentrum der drei Ocellen gelegen, sehr lang (68 μ), die postocellare Reihe ungefähr gerade, kein Börstchen derselben besonders lang. Mundkegel ohne Besonderheit. Fühler 320 329 μ lang; Gliederlängen (-breiten): 25–28(31), 39(28), 62(24), 66(22), 35(17), 60(17), 13(8), 17–18(5) μ. Die Sinneskegel am 3. und 4. Glied sehr lang (am 4. etwa 72–76 μ), das 3. Glied am Ende verengt, aber nicht halsförmig ausgezogen, das 4. Glied wenig ausgezogen und dort nicht oder kaum konkav, das 5. Glied am Ende breit abgestutzt, das 6. schmal, der Stylus lang und schlank, sein 1. Glied viel länger als breit. Pronotum 112 μ lang, 208–212 μ breit, die Scheibe spärlich beborstet, aber die Börstchen verhältnismässig lang, Hinterecken mit 2 Paar sehr langen (80–88, die äusseren 72–76 μ) Borsten, Basis innerhalb mit drei Paar Börstchen. Beine ohne Besonderheit. Flügel 0·76 mm. lang, Costa mit 23, Hauptader mit 7–8 basalen und 3 distalen, Nebenader mit 10 Borsten, die gegen das Flügelende hin recht lang werden. Abdominaltergite stark quer, die Sternite ohne accessorische Borsten, der Kamm am 8. Tergit lang und *sehr regelmässig*, die Dorsalborsten am 9. Tergit 64–68, die posteromarginalen (1, 2) 148–152 und (3) 140 μ lang; die Borsten am 10. Segment messen 140 μ. Das 10. Segment ist oben nicht ganz bis (oder bis zur) Borsteneinlenkung gespalten.— Körperlänge (stark gedehnt): 1·42 mm.

Fundort: 1 ♀, Paratype, Formosa: Rarasan, 31.vii.1933 (*Dr. R. Takahashi*); 1 ♀, Holotype, Shinten, 18.v.1933, in Blüten (*Dr. R. Takahashi*).

Taeniothrips alliorum, sp. n.

♀: Schwarzbraun, alle Schenkel dunkel, Mittel- und Hintertibien dunkel, höchstens die ersteren am Ende aufgehellt, Vorderschienen stark getrübt, oft nur am Ende innen gelb; 1., 2. und 4. bis 8. Fühlerglied dunkelbraun, nur das 3. licht, gelblich, schwach getrübt. Borsten am Körper dunkel. Kein rotes Pigment im Körper (ob immer?), nur die Ocellen rot. *Flügel licht*, nur ganz schwach gelblich getrübt, etwas deutlicher an der äussersten Spitze, Flügelfärbung also etwa wie bei *T. vulgatissimus* (Hal.).

Augen mässig gross, wenig vortretend, lateral und dorsal 66–68 μ lang, Kopflänge bis zum Augenvorderrande etwa 144, im Ganzen 160 μ, Breite an den Augen 160–165, an den nur *etwas* gewölbten Wangen 168 μ. Netzaugen hinten 64–68 μ voneinander entfernt. Die 32–36 μ langen Interocellarborsten ausserhalb des Ocellar-Dreiecks stehend, ihr Abstand voneinander 44–48 μ; schräg nach aussen, vor denselben, 1 Paar sehr kleiner Anteocellarborsten; 6 Paar kleine Postokularen vorhanden, von denen 2 Paare (hintereinander und schräg nach innen) hinter den paarigen Ocellen stehen. Scheitel schwach quergewellt. Maxillarpalpenglieder 16, 12, 20–22 μ lang; Mundkegel normal. Fühlerlänge etwa 330 μ; Gliederlängen (-breiten): 28(34), 42(28), 62(20), 52(21), 43–45(19), 56(20), 8–10(10), 11–13(6) μ. Alle Glieder normal; Stylus kurz, seine beiden Teile in der Länge wenig verschieden. Beine kräftig, besonders die Vorderschenkel, Vordertarsen unbewehrt. Pronotum 144 μ lang, 190–200 μ breit; Hintereckenborsten, äussere 56–60, innere 68 μ lang; innerhalb derselben stehen 3 Paar Börstchen; Scheibenbörstchen *äusserst* spärlich. Mesothoraxbreite 260 μ. Flügel 0·74–0·76 mm. lang; Costa mit 26, Hauptader mit 4 + 2 basalen und 1 + 2 distalen, Nebenader mit 11 Borsten. Abdomen am 2. bis 7. Sternit mit einer ziemlich regelmässigen Reihe accessorischer Borsten (die laterale am 7. Segment nicht verdoppelt, im ganzen 9 B.); Kamm am 8. Tergit praktisch nicht vor-

handen, bei genauer Untersuchung sieht man unregelmässige, rudimentäre Basalplättchen, jedoch keine Kamm-Härchen. Borsten am 9. Segment 147–156 μ, B. 2 am 10. Segment 132–140 μ. 10. Segment fast bis zur Basis gespalten.—Körperlänge: 1·12 mm. (kontrahiert) —1·45 mm. (gedehnt).

Fundort: Formosa: Heito und Taihoku, iv.1925, v.1933, häufig an Zwiebeln (*Allium*) (*Dr. R. Takahashi*).

Diese Art ist mit den bisher bekannten nicht leicht zu verwechseln; von den Arten mit grosser Lücke in der Borstenreihe der Hauptader und geringer Zahl Basalborsten gibt es (ausser den mit vorgequollenen Augen und geschnürtem Kopf) nicht viele Arten mit lichtem 3. Fühlerglied: *T. immsi*, Bagn. hat 5 Paar Posteromarginalborsten; die grossen Arten (*concaviceps*, Pr., **miorrhizae**, sp. n., und **montivagus**, sp. n.) gehören alle in die *picipes*-Gruppe, auch haben sie *keine* accessorischen Borsten der Sternite; **brevistylus**, sp. n., hat vollständigen Kamm und bei *kotoshoi*, Mlt., der auch dunkle Flügel hat, ist der Kamm in der Mitte unterbrochen; ebenso hat *T. andrewsi*, Bagn., dunkle Flügel, ferner hat diese Art das 4. Fühlerglied länger als das 6. und kürzere Interocellarborsten. Von den *nicht*-indischen Arten kommt für den Vergleich nur *T. vulgatissimus*, Hal., in Betracht, da *pallidivestis*, Pr., dünnen Stylus hat (etc.); *vulgatissimus* hat vollständigen Kamm (8. Tgt.), durchschnittlich zahlreichere Nebenaderborsten, längere und schlankere Beine, normale postokulare Borstenreihe am Scheitel, dichter beborstete Pronotumscheibe, etc.

Phlaeothripidae.

Bactrothrips **kenyensis,** sp. n.

Nächst *B. longiventris*, Karny, und *B. divergens*, Bagn., von ersterem durch den längeren Tubus, aber viel kürzeren Kopf, ausserdem viel kürzeren Kopfgipfel, von *divergens* durch die heller gefärbten Tibien und die Gestalt und Skulptur der Röhren-Fortsätze des 6. Segmentes verschieden.

♂: Schwarz (schwarzbraun), Schenkel wie der Körper, Vordertibien etwa in der basalen Hälfte oder an der Basis hellgelb, an den Rändern ± stark getrübt, die Mittel- und Hintertibien nur etwa im Grunddrittel oder Grundviertel getrübt, sonst hellgelb; Tarsen stark getrübt, an der Basis lichter, Flügel schwach gelblich, mit Längsstreif, der etwa die Mitte erreicht und gelblich bis braunlich ist; 1. und 2. Fühlerglied wie der Kopf gefärbt, 3. hellgelb, an der Basis und der End-Keule getrübt, das 4. unregelmässig wolkig hellgrau getrübt, nirgends hellgelb, das 5. ebenso, aber in der Mitte mit undeutlichem gelben Ring, das 6. bis 8. dunkel.

Kopf 649 (von den Augen an nur 580) μ lang, an den Augen sowohl wie hinten 260 μ breit; Kopffortsatz sehr kurz, 74 : 150 (μ); Augenlänge lateral 156 μ; die beiden Paare Postokularborsten stehen an den Ecken eines Rechteckes, das 87 lang und 69–78 μ breit ist; Kopf hinter den Augen mit einem hellen, stumpfen Stachel, der 48–52 μ lang ist; die übrigen Wangenbörstchen dünner, spärlich, nur 1 Stachel hinter der Mitte wieder grösser, gelb. Fühlergliederlängen (-breiten): 88, 88, 450–467(47), 311–329(45), 242–277, 190–200, 96–104, 92–100 μ. Prothoraxlänge 295, Breite ohne Coxen 450, mit diesen 536 μ. Mesothoraxbreite 727 μ, Metathorax 770 μ. Flügellänge 2·46 mm. Schaltwimpernzahl ca. 35. Das 5. Segment des Abdomens ohne Höcker, das 6. mit 1 Paar langen, stark gebogenen, S-förmig gekrümmten, röhrenförmigen Anhängen, die in gewisser Lage, innen sowohl wie aussen, mit grober Höckerskulptur versehen sind. Das 7. Segment seitlich konvex, mit einem kleinen spitzigen Höckerchen, das folgende mit zwei stumpfen Erhabenheiten. Tubus bei der Type 848 μ lang. Der zungenartige Fortsatz an der Basis des 9. Segmentes (innen), der von zwei seitlichen, sehr kurzen Spitzen begleitet ist (siehe Priesner, 1926, Thysanopt. Europ., Taf. II, fig. 13), ist einfach dolch-förmig, während er bei *B. divergens*

etwas lanzenspitzenartig verbreitert ist. Terminalborsten 260–277 μ lang, die langen Borsten des 9. Segmentes hell, 310 μ lang.

♀: Wie das ♂ gefärbt, aber die ganze Basalhälfte der Vordertibien dunkel. Kopf 623 μ lang (von den Augen ab 545 μ), an den Augen oder Wangen 260 μ breit. Augenlänge seitlich 138–147 μ. Kopfstachel etwa wie beim ♂. Distanz der Postokularborsten 87, bezw. 52–70 μ. 3. Fgl. 424(44), 4. Gl. 286 42) μ lang (breit). Mesothoraxbreite 657, Metathoraxbreite 727 μ. Schaltwimpernzahl 40–41. Tubuslänge 934 μ (bei *divergens* 1·19–1·21 mm.).

Fundort: Kenya Kolonie: Kiambu, 1932, an Kaffeepflanze (*Dr. R. H. Le Pelley*) (No. 965). Aus der Sammlung des British Museums.

Eurhynchothrips hargreavesi, sp. n.

♀: Schwarz. Vordertibien hellgelb. Ränder an der Basis getrübt. Vordertarsen hellgelb; Mittel- und Hinterbeine schwarz oder schwarzbraun. Mittel- und Hintertarsen gelbgrau. Flügel glashell, nur die Basalplatte schwach verdunkelt. Fühlerglieder 1, 7 und 8 dunkel, 7 etwas lichter als 8, Glied 2 gelblich, an der Basis und den Rändern mehr weniger stark getrübt, alle übrigen Glieder rein hellgelb. Borsten am Körper licht oder nur sehr schwach getrübt.

Kopf deutlich breiter als lang, von den Augen ab 155 μ lang, an der breitesten Stelle 178 μ breit; Wangen parallelseitig oder schwach nach hinten verengt, hinten geschnürt. Augen nicht vorragend, seitlich 68 μ lang. Wangenlänge hinter den Augen 104 μ; Wangen mit wenigen borstentragenden Wärzchen, von denen nur eines im hinteren Drittel etwas deutlicher ist; Postokularborsten lang, etwas gebogen, gelblich, 75 μ, am Ende offen oder schwach geknöpft. Mundkegel stark verschmälert, zugespitzt, aber den Hinterrand des Prosternums nicht ganz erreichend. Fühlerlänge 363–372 μ. Die beiden Endglieder sehr schlank, das 7. Glied parallelseitig, *das* 8. *spindelförmig, am Grunde geschnürt*; das 3. mit zwei, das 4. mit 2^{-1} Sinneskegeln, das 5. und 6. ebenso, aber am 6. ist der äussere Sinneskegel äusserst klein (daher 1^{-1-1}); 7. Glied mit 1 dorsalen Kegel; Areola am 2. Glied nahe der Spitze. Gliederlängen (-breiten): 34–36(34), 48–50(32), 48(32), 41–42(32), 46(29), 46(28), 53(22), 56(16) μ. Prothorax 164 μ lang, nach hinten stark geradlinig erweitert, 294, samt Coxen 329 μ breit; Borsten am Vorderrand gut entwickelt, an den Vorderecken etwa 60 μ lang, deutlich geknöpft. Hintereckenborsten *sehr lang*, gelblich, etwa 104–108 μ, gebogen, geknöpft; auch die lateralen Borsten lang. Mesothorax etwa 346 μ breit. Vorderecken abgerundet; Flügel nur 727 μ lang, breit, gleichbreit, alle drei Basalborsten geknöpft, 44–50, 68 und 68 μ lang; Fransen nicht gefiedert, Schaltwimpern *fehlen*. Beine kräftig. Vorderschenkel nur schwach verdickt, Vordertarsen unbewehrt, kurz. Borsten am 9. Segment licht, nur schwach gelblich, B. 1 100, B. 2 92 μ, beide geknöpft, B. 3 haarartig, spitzig, 140–160 μ. Tubus kurz konisch, aber an der Basis eine kurze Strecke parallelseitig, dorsal 125, ventral 130–132 μ lang, am Grunde 74, am Ende 34 μ breit. Terminalborsten über 120 μ lang.—Körperlänge (gedehnt): 1·73 mm.

♂: Vom ♀ durch die geringere Grösse und den sehr tiefen Tubusausschnitt zu unterscheiden; Vordertarsen auch hier *un*bewehrt. 9. Sternit unter der Tubusbasis vorgezogen, und nur B. 1 des 9. Tergites ist geknöpft, 105 μ, B. 2 ist kurz, haarartig (nicht dornartig), 44–48 μ, B. 3 lang haarartig, 136 μ. Wangen nach hinten schwach verengt. Weitere Masze der Allotype in μ: Kopflänge 132 (samt IAF 140), grösste Breite hinter den Augen 154; Augendurchmesser, lateral, 56; Fühlerlänge 310; Gliederlängen (-breiten) vom 2. an: 42(27), 42(28), 34(28), 39(25), 39(22), 45(20), 48(14). Tubuslänge (dorsal) 106–112, Tubusbreite an der Basis 59–62, an der Spitze 31.

Die *Sekundärlarven* sind hellgelb, mit den üblichen Trübungen, ganz getrübten Fühlern, die kurz und gedrungen sind, deren Endglieder getrennt. Dorsalborsten geknöpft. Borsten am 9. Segment kurz, stark geknöpft, B. 4 haarartig. 9. Segment stark quer. Sie sollen später, vergleichend behandelt werden.

Fundort: Sierra Leone: Njala, 1933, verursacht Blattkräuselung an *Combretum* sp. (*E. Hargreaves*), dem wir die Entdeckung einer Reihe der interessantesten Thysanopterenformen zu verdanken haben.

Von *E. flavicornis*, Bagn., unterscheidet sich die neue Art durch das dunkle Fühlerende, die Anordnung der Sinneskegel, die spitzigen B. 2 des 9. Segmentes des ♂, u.s.w.; von *E. convergens*, Bagn., ist die neue Art sofort durch die Kopfform zu unterscheiden und, sowie von *E. ordinarius*, durch den Mangel der Schaltwimpern; auch die sehr kleinen, aber deutlichen Kopfwärzchen sind charakteristisch für die neue Art.

TWO NEW PARASITES OF ACULEATE HYMENOPTERA FROM TRINIDAD

By O. W. Richards, M.A., D.Sc., F.R.E.S.

Mr. D. Vesey FitzGerald recently brought back a collection of parasites of Aculeate Hymenoptera, bred in Trinidad, B.W.I. Owing to his kindness I have been able to study some of them, and the two following appear to be undescribed.

Braconidae.

Doryctinae.

Heterospilus **microstigmi,** sp. n.

♀. Pale yellowish-testaceous, only the eyes, ocelli, and claws black. Antennae becoming blackish after the fourth segment. Length 3 mm., expanse 5 mm.

Head a little broader than the thorax, dull, but without visible sculpture. Antennae with twenty-six segments, after the second all two and a half to three times as long as broad, antennae one and two-thirds times as long as the whole body. Maxillary palpi very long, reaching back to the mid coxae. Eyes at level of posterior ocelli separated by the combined lengths of segments three and four of the antennae. Outer edge of posterior ocelli separated from eyes by one and a half times the distance between the outer edges of the posterior ocelli. Ocelli in an equilateral triangle, separated by half their diameter. Posterior edge of the posterior ocelli separated from the occipital keel by the same distance as their outer edge is separated from the eyes. Front of mesonotum, before it slopes down to the pronotum, defined by a transverse keel which is curved back at the sides. Surface dull, not visibly sculptured. Furrows defining the median lobe broad but very shallow, not crenulate, not meeting before the hind margin. Scutellum with a very deep subrectangular depression at base, twice as broad as long, its bottom shining, crossed by three longitudinal keels. Mesopleuron dull, prepectus more shining, crossed by some longitudinal keels; furrow separating mesopleuron from the mesosternum very weakly impressed, not crenulate; posterior margin of mesopleuron with a furrow from wings to mid coxae, bottom of furrow weakly crenulate. Mesosternum centrally depressed, with a strong transverse keel in front, defining the depression for the reception of the fore coxae. Wings hyaline, pterostigma a little broader than the first radial abscissa, radial abscissae as 2 : 3 : 12, the last one straight and ending at the apex of the wing; first transverse cubital one and a half times as long as the second radial abscissa which is as long as the second transverse cubital; recurrent nerve interstitial with first transverse cubital. Propodeum irregularly clathrate, areas so defined moderately shining. Sides of first abdominal tergite one and a half times as long as its apical width, surface dull, central area (nearly whole width at base, one quarter of it at apex) raised longitudinally but hardly defined by keels, sides at apex very obsoletely longitudinally striate; second tergite nearly twice as broad as long, dull, finely longitudinally striate; remaining segments shining, unsculptured, three and four with strong transverse impressions just after their bases; seven segments visible. Ovipositor about as long as the first tergite. Legs long and thin, femora little thickened.

♂. Rather smaller. Antennae with only twenty-four segments. Hind-wings with a very large shiny pterostigma soon after base.

Male and female cotypes, Trinidad, B.W.I., Junapuna, San Miguel Valley, emerged 21 Sept., '33 (*D. Vesey FitzGerald*), bred from the nest of *Microstigmus theridii*, Ducke (Collector's no. 2427). Deposited in the British Museum.

The members of this genus are usually parasites of Coleoptera, but this species, though it has a different host, is not at all aberrant in structure. According to Szepligeti (1904, *Gen. Insect.*, **22a** : 54–5) *Heterospilus* is known by having the first transverse cubital nerve absent or rudimentary. Actually, in the present species, as in a number of others, it is fairly distinct, though rather transparent.

No described species of the genus seems to be very closely allied. Ashmead described a number from the Lesser Antilles, but none of them has the transverse keel on the mesonotum, in nearly all of them the ovipositor is much longer, the ocelli nearer the occipital keel and the colour darker. Dr. C. F. W. Muesebeck kindly compared the species with the material available at Washington but was unable to match it.

Encyrtidae.

Signiphorinae.

Signiphora **polistomyiella,** sp. n.

Very close to *S. dipterophaga*, Girault (1916), but differs as follows :—a little larger, length about 1·5 mm.; colour of head, thorax and abdomen dark greenish, more metallic, less black; legs paler, all femora partly pale, tibiae entirely pale (in *dipterophaga* four hind femora and tibiae mainly dark); fine bristles on the antero-ventral side of the mid tibiae (fig. 3*a*) a little weaker.

♀. Dark greenish black; scape of antennae and legs yellowish-testaceous; tip of scape and rest of antennae brown; mark on the underside of the fore coxae, on underside of hind femora, spur and points of attachment of larger bristles of mid tibiae, dark. Whole surface smooth and shining, head above antennae with faint cross-reticulation and very sparse fine punctures; thorax with very fine cross-reticulation; abdomen with microscopic reticulation. Mandibles both small with two apical teeth. Antennae (fig. 1) inserted laterally, just above the bases of the mandibles, consisting of scape, large pedicel, three ring-segments and a large club. A not very sharply defined, parabolic area on face sunk in to receive the scapes, which, in their resting position, converge upwards from their widely separated bases. Clypeus a little convex, apex shallowly emarginate over its whole width. Ventral corner of eyes widely separated from mandibles, separated from insertion of antennae by three-quarters the length of the scape; eyes approaching one another most closely at a point half-way between the top of the facial cavity and the occiput, diverging again behind this; at this point separated by only one and a half times the length of the scape. Ocelli in an equilateral triangle; median ocellus situated on median line at level of closest approach of eyes, posterior ocelli separated by about twice their diameter from both eyes and occiput. Head posteriorly concave, occiput with a knife-like edge, the part behind the upper portion of eyes linear, broadening considerably below and remaining sharp-edged as far as base of mandibles. Wings (fig. 2) hyaline, absolutely bare except for the apical fringes and the costal bristles. Mid legs and their armature as in fig. 3. Hind tibia and tarsus about as long as mid tibia and tarsus, but tibia relatively much longer and the tarsus correspondingly shorter. Ovipositor projecting beyond last tergite for three-quarters length of tergite, bearing two strong bristles dorsally just before its apex.

Fourteen female cotypes bred from a distorted Dipterous puparium in the cocoon of *Polistes* sp., Trinidad, B.W.I., nest on roof of shed, Mt. Tabor, N. ranges 1833 ft., collected 22 April and emerged 9 May, '33 (*D. Vesey Fitz-*

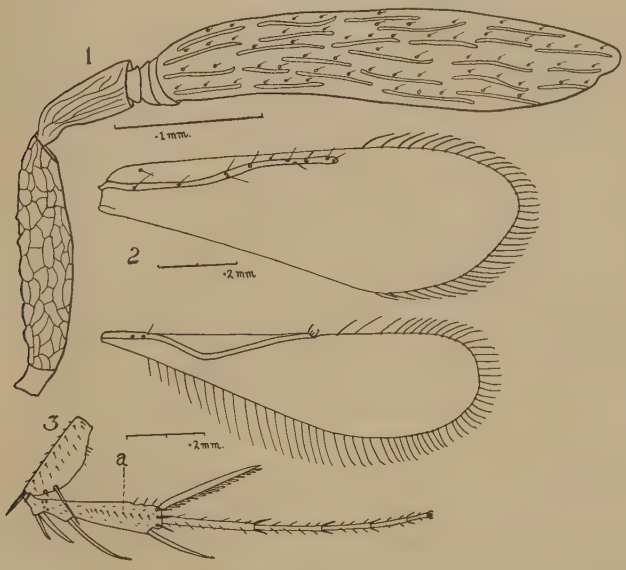
Gerald) (Collector's no. 1927). Five specimens deposited in the British Museum, five in the U.S. National Museum and four (one on a slide) in my collection.

S. dipterophaga (Girault, 1916, *Ent. News*, **27** : 401) was bred from a Dipterous puparium found in the burrow of *Diatraea* in sugar-cane, also in Trinidad. There are two females in the British Museum collection bred from *Paratheresia claripalpis*, a *Diatraea*-parasite. Five cotypes of *S. polistomyiella* were sent to Dr. A. B. Gahan, at Washington, and were found by him to differ from the types of *S. dipterophaga* in the same characters as I had found them to differ from the British Museum specimens. All other bred species of *Signiphora* have been obtained from COCCIDAE.

I have placed this species in the genus *Signiphora*, Ashmead (1880), which is structurally somewhat heterogeneous. Mercet (1917, *Rev. real Acad. Cienc.*, **16** : 160–70) attempts to separate out a genus *Thysanus*, Walker (1840). His characters for separation are as follows :—

Body short and broad; intermediate metatarsi much shorter than their tibiae, much longer than the first segment of the posterior tarsi; mandibles bidentate . . . . . *Signiphora*.

Body longer and narrower; intermediate metatarsi as long as their tibiae, of the same size as the posterior tarsi; mandibles tridentate . . . . *Thysanus*.



FIGS. 1–3.—*Signiphora polistomyiella*, sp. n.; fig. 1. The antenna, highly magnified; fig. 2. The wings; fig. 3. The right mid leg.

The present species has the legs more like *Thysanus* but the mandibles are bidentate. The sharp posterior margin of the head is characteristic, but Dr. Gahan writes that this is developed to varying degrees in different species. Probably several genera of SIGNIPHORINAE will ultimately be recognised and it is not therefore proposed to treat *Signiphora* as a synonym of the earlier name *Thysanus*.

TWO REMARKABLE AMPHIENTOMIDS (PSOCOPTERA)

By J. V. Pearman, F.R.E.S.

Among the Psocid material I have received from various sources for study, are two Amphientomids with a marked superficial resemblance to Lepidopsocids, particularly in wing form. Each is represented by a different sex, and neither can be assigned to any known genus. Although the acuminate, subelytral fore-wings, vestigial hind-wings, and truncate picks (differing from the common Amphientomid type) imply relationship, differences between the two species in general facies, head form, position of ocelli, ciliation of maxillary palpi, mandibular shape, hind coxal development, telson details and scale form, as well as their geographical separation, are indicative not only of specific but possibly of generic disparity. However, until the missing sexes can be examined they are both retained within a single genus, diagnosed on characters that may ultimately be found to possess in some degree the quality of subfamily distinctions.

Here it is pertinent to refer to two peculiarities, apparently not hitherto recorded, which are probably common Amphientomid features since they have been found also in a species of *Syllysis* (the only other genus of the family of which I have had examples for dissection):—(1) the hind coxal organ differs from that of other Psocids (see 1928, *Ent. mon. Mag.*, **64**: 183) and consists merely of a smooth, thin-walled, blister-like protuberance—sometimes that on one coxa appears as a depression, possibly the result of post mortem invagination; (2) along the lower side of the inner face of each femur of the fore legs is a row of pointed, scale-like, epidermal spinelets, referred to hereafter as the "comb" of the fore femora.

* Nephax, gen. n.

Genotype *N. sofadanus*, sp. n.

Ocelli 2. Eyes with a few short cilia. Picks unequally bifid, tines truncate. Maxillary palpi of usual Amphientomid form, basal segment extremely small, second segment with the usual short sense-spine. Mesothorax without parapsidal furrows. Fore-wings of Lepidopsocid form with acuminate apex; venation, when complete, simple, stigma-closing portion of *sc* suppressed, *cu* not forked, *an* and *ax* entering hind margin separately. Hind-wings vestigial. Basal segments of tarsi of middle and hind legs with strong spines beneath. Claws with a single tooth below apex, followed by five hairlets.

Nephax sofadanus, sp. n. (Fig. A.)

♂. *Colour* (in alcohol). Head light brown, marked with darker brown on cheeks; clypeus very finely striate; eyes dark brown; palpi pale, end segment browned; antennae light brown. Thorax light brown. Legs yellowish; tibiae with two dark annulations (incomplete on hinder pair) separated by a space rather wider than the pale tracts at the extremities; segment I of tarsi darkened basally. Fore-wing scaling largely lost, that remaining predominantly pale with brown scales intermingled; membrane and veins colourless except for a few brown spots, as figured. Abdomen brownish (discoloured).

Morphology. Head rounded, in profile nearly hemispherical, excavate behind but vertex not sharp-edged; eyes rather large, with long bases, nearly hemispherically protruding, not overtopping vertex, interspace across face about 3½ times apparent eye-diameter; epicranial (median) suture very fine; frontal suture not marked; frons almost entirely usurped by clypeus; latter very large and broad but only lightly tumescent; ocelli two only, one close to lower margin of each eye; antennae (defective) slender, flagellar segments very closely but somewhat coarsely and irregularly annulate, with shorter and

* Anagram of φεναξ, impostor, in allusion to the deceptive appearance.

longer scattered cilia; mandibles of extraordinary trapezoidal outline (fig. A, 2); maxillary palpi with bristly ciliation, longest on outer side of second segment, scales interspersed on second and third segments; pick slightly outbent and upturned in apical third, inner tine a truncate stub (fig. A, 3); labium much as in *Cymatopsocus opalinus*, Enderlein (1903, *Ann. Mus. Hung.*, **1**: Taf. xii). Head generally with close short ciliation; across hinder part of vertex an irregular row of large sockets (presumably of bristly setae). Prothorax compressed, partly hidden in occipital concavity; mesothorax small, notum subtriangular; metanotum larger, deep, transversely furrowed a little below middle; pronotum and metanotum bare, mesonotum rather closely ciliated or scaled (denuded). Legs with scales on femora, tibiae and tarsi; hind coxae very large; fore femora lightly expanded and with a comb of about 16 teeth; fore tibiae with bristly ciliation, mid tibiae with two strong spines in middle of outer side, hind tibiae with numerous spines, longer on outer side; tibial end-spurs apparently 1, 2 and 3 respectively; tarsi of fore legs without differentiated spines on plantar surface, mid tarsi with a few such; hind tarsal plantar spines, including end-spurs, on segment I—16 (paired in places) having basal ctenidia, on segment II—3 without ctenidia; proportional lengths of hind tibia and tarsus 12 : 9 (7 : 1 : 1). Forewings reaching to end of abdomen, convex, parchmentitious; upper surface roughened by presence of insertion cupules (latter particularly large on outer margin) and microtrichia, without evident venation; lower surface smooth with raised venation, this subject to some aberration, mean arrangement as in fig. A, 1, wing-stop formed by expanded tracheal loops placed on stem of radius basalwards of root of *rs*, no wing clasp at end of *an*; scales of various sizes but all straightly truncate and longitudinally striate (fig. A, a–c), interspersed with subbristly short hairs. Hind-wings reduced to triangular vestiges with trace of a longitudinal vein, not scaled or ciliate. Abdomen long ovoid; rather sparsely and finely ciliate in rows, with indications of intermingled scaling; telson simple with moderate to short ciliation, paraprocts without either sense-fields or apical spurs. Hypandrium a simple, rather broad, shallowly convex hood, lightly sclerised, ciliate; phallic sclerite somewhat as in species of Cerastipsocinae (see 1933, *Stylops*, **2**: 161) but not closed basally, cordiform in outline, apical projection lamellar with rounded tip, almost colourless.

Length of insect 2·4 mm., fore-wing 2 mm.

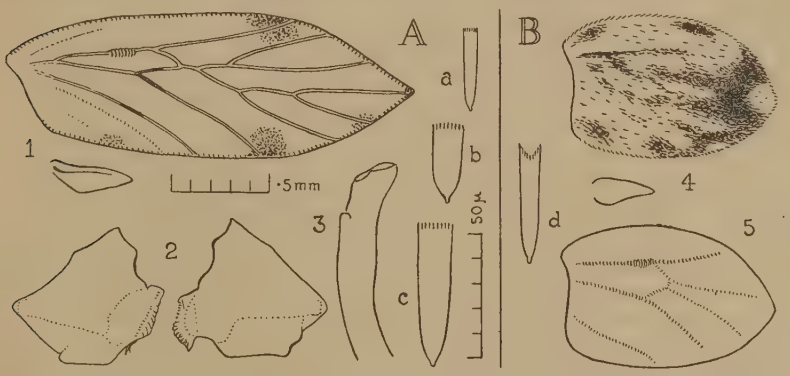


Fig. A.—*Nephax sofadanus*, sp. n. 1, wings; 2, mandibles; 3, pick; *a*, *b*, *c*, fore-wing scales, striations only indicated apically; fig. B.—*N. capensis*, sp. n. 4, wings; 5, fore-wing venation; *d*, fore-wing scale.
Horizontal measurement scale relates to figs. 1, 4 and 5 only; vertical to *a–d* only.

Palestine: Sofad District, 13.xi.1926, 5 ♂♂ (*G. F. Hucklesby*).

The specimens, which had been sent to the Imperial Institute of Entomology and referred to me by Sir Guy Marshall, were partly dismembered and in poor

condition from long keeping in alcohol with plant fragments and grit. On a cursory glance they could be mistaken for examples of a Perientomine species. The position of the wing-stop—a protuberance upon which the hind-wing lodges when at rest—is peculiar, and probably correlated with the reduction of the hind-wings; this structure usually develops at the base of the pterostigma and has hitherto been designated the "stigma-sac."

Nephax capensis, sp. n. (Fig. B.)

♀. *Colour.* Generally creamy mottled with warm brown. Well preserved specimens, denuded of pubescence and scales, show the following. Head, two close lines of congested spots alongside each eye, about the median suture a group of four such lines running to a point anteriorly, across vertex a double line of spots, two groups of congested spots on frons. Eyes greenish with some fine brown flecks. Ocelli brown. Antennae blackish-brown. Clypeus with about 14 striae resolvable into spots. Labrum dark brown. Palpi pale, second and terminal segments touched dark brown basally, end segment also dark brown in apical half. Thoracic nota closely spotted. Legs creamy, marked with dark brown as follows:—femora at apex; tibiae, two broad annulations, one near knee, the other midway between that and end of tibia; tarsi, base and extreme tip of proximal segments and the whole of both terminal segments. Abdomen, six transverse rows of red-brown spots bordered anteriorly by bold cross-lines, interspaces between rows lighter brown but divided by a median, vertical, darker line. Genitalia tinged dark brown. Fore-wings (scale marking) creamy variegated with dark grey-brown (fig. B, 4).

Morphology. Generally of robust build. Head,—epicranium rather long, vertex rounded, median suture distinct, frontal suture lightly marked and nearly straightly transverse; ocelli two, very small, placed rather close together on frontal suture near end of median suture; frons moderately deep; clypeus relatively large and broad but only lightly tumescent; eyes with broad bases set deep in head capsule, scarcely protuberant, not overtopping vertex, separation about $3\frac{1}{4}$ times apparent eye diameter; antennae slender, flagellar segments finely and closely annulated and with scattered cilia; maxillary palpi not scaled but beset with minute microtrichia and bristly hairs; mandibles and labium somewhat like those of *Cymatopsocus opalinus*, Endln. (1903, *loc. cit.*: Taf. x, xii); pick up-curved distally, much like that of preceding species (fig. A, 3), but lesser tine relatively larger and nearer tip. Head generally beset with short, fine, pale pubescence. Prothorax prominent, rather wider than head between eyes, transversely compressed; mesonotum small, narrower and only a little deeper than pronotum, hind margin forming a very obtuse angle medially; metanotum simple, twice as deep as mesonotum, with a transverse suture across middle; pronotum and mesonotum densely scaled. Fore-wings very short, only about half their length projecting beyond thorax, slightly convex, parchmentitious; vestiture of relatively long, narrow, striate scales, differing only slightly in size, some straightly truncate but most more or less indented terminally (fig. B, *d*), some also curved about the longitudinal axis; interspersed are some fine cilia of approximately equal length with the scales, below the scales fine microtrichia; venation obsolescent and much reduced (made visible in microscopical preparations only by oblique or dark-ground illumination), aberrant, average arrangement as in fig. B, 5, remains of wing-stop recognisable about middle of radius. Hind-wings reduced to tiny vestiges with microtrichia only. Legs with truncate scales on femora and tibiae; hind coxae moderately large; femora of fore legs somewhat expanded and with a comb of about 32 teeth arranged irregularly; tibiae stout with dense microtrichia and short bristly cilia, tibial end-spurs 1, 3, 3 respectively, hind tibiae bearing in distal half on inner side a row of about six stout spines without evident ctenidial bases; all tarsi nearly as long as their tibiae, basal segments of all tarsi with a row of plantar spines (in hind foot about 9) in addition to their two end-spurs, middle segments also with a few such spines, distal segments with strong setae only; proportional

lengths of hind tibia and tarsus—15 : 14½ (10½ : 2 : 2); claws elongate, post-apical tooth very small. Abdomen very large, ovate-globose, integument studded with minute points in closely-set rows, and irregularly beset with fine cilia and very narrow truncate scales; telson,—suranal lobe triangular, with short cilia; paraprocts oblong, more than twice as long as deep, with mingled very short and longish cilia, a rounded prominence having ten undifferentiated cilia in upper angle near suranal lobe, the opposite upper angle produced into a sclerised hook approximated to gonapophyses. Subgenital plate set with fine cilia and bearing an obtusely angled V-shaped mark whose point lies near the middle of the flatly rounded margin. Gonopods not ciliate, heavily pigmented; of segment VIII ribbon-like, parallel-sided for rather more than half their length, then narrowed to a point; of segment IX, median gonopod oval, apex produced into a long point, lateral gonopod ovoid, offset from base of median gonopod. Spermatheca a large sac with a complex, dark, sclerised, hooded apex from which a long, slender, coiled duct proceeds to the gonopore; latter on a pigmented plate patterned somewhat like the letter O supported between the arms of a Y.

Length of insect 4 mm. approx., of fore-wing 1 mm.

South Africa: Cape Colony: Saldanha Bay, 5.ix.1912, 7 ♀♀ (*Dr. K. H. Barnard*); Kloof Nek, under stones, 31.viii.1930, 12 ♀♀ (*H. Womersley*), 15.ix.1931, several, damaged in transit (*Dr. L. E. Gill*); Wellington Mts., on rocks, 4.x.1931, 4 ♀♀, 3 nymphs (*Dr. K. H. Barnard*). Types distributed between the British and South African Museums.

In build much like the micropterous females of species of the genus *Mesopsocus*. The size and shape of the wings call to mind the Lepidopsocid, *Lepidilla kelloggi*, Ribaga (*Pteroxanium squamosum*, Endln.), but whereas the latter species is blackish brown with some paler markings and is invested with bristles, the South African insect is predominantly pale with brown markings and has only short pubescence.

FOUR NEW DERELOMINAE (COL. CURC.)

By Sir Guy A. K. Marshall, F.R.S., F.R.E.S.

Unless otherwise stated, the types of the following new species are in the British Museum.

Prosoestus minor, sp. n.

♂♀. Piceous brown, with the head and rostrum black, the prothorax often blackish, and the antennae and tarsi ferruginous.

Head with rugose confluent punctation, the forehead with a broad deep transverse impression. *Rostrum* of ♂ about as long as the head and prothorax, gently curved, with rugulose confluent punctation, and 5-carinate in the basal half; rostrum of ♀ longer, slightly more slender and more curved, much more finely punctate, with the carinae obsolete or visible only close to the base. *Antennae* with joints 3–7 of the funicle all transverse and gradually widening distally. *Prothorax* slightly broader than long, gradually narrowing from base to apex, with the apical angles usually projecting very slightly; the dorsum with coarse close punctures which become more rugose and confluent laterally, the narrow intervals on the disk with a few minute punctures, and a very shallow large rounded impression on each side of the disk behind the middle; the lateral margins sharply carinate throughout; the recumbent pubescence very fine and sparse, often abraded. *Scutellum* transverse, impressed in the middle. *Elytra* oblong-ovate, slightly wider at the base than the prothorax, broadly and separately rounded at the apex; the deep striae containing close deep punctures which diminish behind, stria 9 beginning only on a level with the hind coxa and becoming almost immediately confused with stria 10, owing to the disappearance

of interval 10, so that the elytra appear to have only 9 striae; the intervals not wider than the striae, convex, with numerous minute punctures, interval 7 subcostate and higher than the others, interval 9 still higher and subcarinate; the pubescence even finer and more sparse than on the prothorax. *Prosternum* with two sharp prominences behind the coxae.

Length, 2·5–3·5 mm.; breadth, 0·8–1·4 mm.

Gold Coast: Aburi, 1 ♂, 1 ♀, x.1920, and Accra, 1 ♂, 1 ♀, x.1920 (*W. H. Patterson*). Dahomey: 2 ♂♂, 8 ♀♀, 1910 (*A. Chevalier*—Mus. Paris); Nigeria: Ibadan, 4 ♂♂, 2 ♀♀, ii.1934 (*F. D. Golding*—type). Belgian Congo: Haut Lopori, 2 ♂♂, v.1927 (*J. Ghesquière*).

Nearly allied to the genotype, *P. sculptilis*, Fst. 1899, which is, however, a much larger insect with the base of the elytra not wider than the prothorax; the pronotum has the larger punctures all separated and lacks the discal impressions; the lateral intervals on the elytra are not elevated, and striae 9 and 10 are distinctly separated by interval 10.

The only other described species, *P. furcatus*, Fst. 1899, from East Africa, differs *inter alia* in having no scutellum, and the elytra are constricted near the base.

The species of *Prosoestus* and *Derelomus* are specially associated with the flowers of various palms, but whether they assist in pollination is not yet known for certain. All the specimens referred to above were taken on flowers of *Elaeis guineensis*, but only in two cases was the sex of the flower mentioned: the Dahomey specimens were found on male flowers, and the Nigerian ones on female flowers. Mr. Golding informs me that these are the only beetles of this group that he has ever seen on the female flowers of *Elaeis*.

When defining his genus *Prosoestus*, Faust appears to have overlooked the fact that all the distinctive characters which he mentions are also to be found in various West African species which he had previously placed in the genus *Derelomus*; moreover, they possess, in common with *Prosoestus*, another character distinguishing them from *Derelomus*. In the latter genus interval 9 of the elytra becomes the actual margin in the apical area, the two outer intervals disappearing there; whereas in *Prosoestus* the true margin continues to the apex. The following species should therefore be transferred from *Derelomus* to *Prosoestus*:—*plagiatus*, Fhs. 1844; *kamerunicus*, Fst. 1898; *singularis*, Fst. 1898; *subvittatus*, Fst. 1898; and *bilineatus*, Hust. 1924.

At present it would seem that *Prosoestus* is a West African genus, for the single species described from East Africa by Faust is not likely to prove congeneric, judging by the description. On the other hand, although I have examined hundreds of Derelominae taken from palm flowers in various parts of West Africa, I have not yet seen a single true *Derelomus* from that area.

Derelomus **productus**, sp. n.

♂♀. Colour pale testaceous; the sides of the rostrum (occasionally the whole rostrum), a narrow ring round the eyes, the scutellum, and the sides of the metasternum, dark brown.

Head with fine dense shallow punctation. *Rostrum* of ♂ as long as the pronotum, gently curved, finely rugulose and with five distinct carinae; that of ♀ very little longer, slightly more curved, and with the carinae almost as well developed as in ♂. *Antennae* inserted at about one-fourth from the apex in both sexes; the funicle with joint 1 as long as 2–4, 3–7 transverse. *Prothorax* slightly transverse, widest at the base, gradually narrowing anteriorly and constricted at the apex, but the apical angles not very prominent; the lateral margins sharply carinate, with a small emargination in the middle, which is sometimes obsolescent; the dorsum with fine close shallow punctation and a shallow transverse impression close to the apex. *Elytra* oblong-ovate, slightly wider at the middle, jointly

subtruncate at the base, broadly and separately rounded at the apex, which is somewhat produced beyond the abdomen in ♂, being much more produced and sublaminate in ♀; the striae shallow and closely set with small punctures, stria 8 deeper, 9 and 10 obsolescent; the intervals a little broader than the striae, impunctate, with very fine sparse pubescence, interval 9 sharply carinate throughout and coalescing with the actual margin on a line with the base of ventrite 5. *Legs* with the tarsal claws simple, divaricate.

Length, 2·4–2·6 mm.; breadth, 0·9–1·1 mm.

S. India: Shembaganur, Madura, 3 ♂♂, 6 ♀♀, 1914 (Paris Mus.).

Type in the Paris Museum; cotypes in the British Museum.

Readily distinguished from the two known Indian species of the genus, *cervicalis* and *bicarinatus*, Mshl. 1928, by the apically produced elytra and the sharply carinate 9th interval.

Derelomus **turneri**, sp. n.

♂. Testaceous yellow, with the head and rostrum and the greater part of the prothorax brown, the metasternum and venter piceous; pronotum with two very broad blackish stripes, which are ill-defined and slightly curved, the enclosed area paler than the margins; scutellum concolorous; elytra with an abbreviated blackish sutural stripe beginning at some distance from the base and ending at the top of the declivity; a short blackish stripe on interval 3 near the base, a much shorter one nearer the base on int. 5, and these sometimes connected by a spot on 4; a variable blackish patch behind the middle between striae 2 and 6, sometimes quadrate, but usually with the mark on int. 4 much shorter than those on the adjoining intervals, and rarely the stripe on int. 3 produced forwards to unite with the sub-basal stripe; the base of int. 10 and the whole of 9 brownish, and the apex usually suffused with brownish.

Head with close shallow punctation anteriorly, the forehead a little narrower than the base of the rostrum, with the punctures and the median fovea almost concealed by broad recumbent brassy setae. *Rostrum* stout, a little shorter than the pronotum (5 : 6), with six punctate striae separated by seven fine carinae, the median carina bearing a short stria anteriorly; the setae like those on the forehead but more sparse. *Antennae* inserted at one-fourth from the apex; the funicle with joint 1 as long as 2–4, 3–7 transverse. *Prothorax* transverse (6 : 7), parallel-sided from the base to two-thirds, then abruptly but roundly narrowed to the apex, which is simply constricted in the form of a collar without any projecting angles, the lateral margins rather obtusely carinate; the dorsum with the apical constriction scarcely visible in the middle, with close punctation which is mostly concealed by the dense broad recumbent brassy setae. *Elytra* oblong-ovate, jointly subtruncate at the base, parallel-sided from the shoulders to beyond the middle, jointly rounded at the apex; the striae deep, containing small close punctures; the intervals broader than the striae, slightly convex, all of equal height except the 9th, which is costate as usual, each bearing two rows of subrecumbent setae and between these a single row of short straight erect setae. *Legs* with the tarsal claws strongly appendiculate.

Length, 2·6–3·0 mm.; breadth, 1·1–1·2 mm.

Cape Province: Aliwal North, 4 ♂♂, xii.1922 (*R. E. Turner*).

Distinguished by its well-marked coloration, the dense brassy setae on the head and pronotum, the unusual arrangement of setae on the elytra, and the appendiculate claws.

Derelomus is usually described as having simple divaricate claws, but this is by no means true of all the species. In most cases there is some thickening at the base of the claws, sometimes with a very small tooth bearing a minute seta, showing intergrading forms which lead up to the fully appendiculate type occurring in this and another South African species, *incognitus*, Hesse 1929.

Meredolus, gen. n.

Head with the forehead slightly narrower than the base of the rostrum; the eyes remote from the prothorax. *Rostrum* elongate, with the scrobes lateral and reaching the lower half of the eye. *Prothorax* transverse, with the lateral margins not carinate, shallowly bisinuate at the base, slightly constricted at the apex, the apical angles not projecting. *Elytra* subtruncate at the base, broadly and separately rounded at the apex, leaving the pygidium more or less exposed, with ten striae, 9 and 10 confused together posteriorly. *Wings* functional. *Legs* with the femora clavate, unarmed; the tibiae gradually widening from base to apex, without any sign of a mucro; the tarsal claws simple and divaricate. *Sternum* with the front coxae narrowly separated and close to the base of the prosternum, which is elongate in front of the coxae; mesepimera large and broad at the base, the mesosternal process transverse and broadly truncate. *Venter* strongly convex transversely and curving upwards behind, the intercoxal process ogival and much narrower than a hind coxa, ventrite 2 longer than 1 behind the coxa and as long as 3 + 4.

Genotype: *Meredolus cocotis*, sp. n.

Differing from typical *Derelomus* in lacking the lateral carina on the prothorax and in having the apices of the elytra separately rounded so that the pygidium is partly exposed, and agreeing in these characters with *Nodocnemus*, Mshl. 1931, and *Derelomorphus*, Mshl. 1928. Most nearly related to the latter genus, which differs in having the forehead as wide as the base of the rostrum, all the femora with a sharp tooth, and the tibiae abruptly narrowed in the basal half.

In the description of *Derelomorphus eburneus*, Mshl., the prothorax was inadvertently stated to be longer than broad; it is really broader than long.

Meredolus cocotis, sp. n.

♂♀. Uniform pale yellow, with the head, rostrum and the club of the antennae brown or fuscous.

Head with very shallow fine close punctation, the forehead without a fovea. *Rostrum* curved, very slightly widened at the insertion of the antennae, finely and densely punctate in the basal half, more sparsely so in front, varying in length in both sexes. *Antennae* inserted at the middle of the rostrum in ♀, beyond the middle in ♂; joint 1 of the funicle as long as 2 + 3, 3 and 4 equal and as long as broad, 5–7 transverse and widening progressively, 7 fitting close to the club. *Prothorax* transverse, broadest at the base, narrowing in a regular curve to the apex, which is shallowly constricted; the dorsum with very shallow fine confluent punctation throughout and silky pubescence. *Elytra* broadly ovate, a little wider at the base than the prothorax, obtusely rounded at the apex; the very shallow striae with fine punctures that disappear near the apex, stria 1 slightly deeper than the others; the intervals flat, finely aciculate and with thin short recumbent pubescence. *Venter* of ♂ with the apical margin of ventrite 5 lobate in the middle.

Length, 2·0–2·5 mm.; breadth, 1·0–1·2 mm.

Solomon Is.: Lunga, Guadalcanal, 5 ♂♂, 3 ♀♀, viii.1928 (*R. W. Paine*); Tulagi, 9 ♂♂, 8 ♀♀, v–vi.1934 (*R. A. Lever*—type); Tenaru, Guadalcanal, 1 ♂, 8 ♀♀, ix.1934 (*R. A. Lever*).

All the specimens were found in the male flowers of the coconut palm.

The variation in the length of the rostrum in both sexes is a very remarkable feature; moreover in the ♂ it is correlated with another peculiar structure. In those with the longest rostrum there is a vertical concave process immediately in front of and between the front coxae; this appears to vary with the length of the rostrum, and when the latter is shortest the sternal process is entirely absent.

A NEW GENUS AND TWO NEW SPECIES OF BUPRESTIDAE (COL.) FROM SIAM

By Chakratong Tongyai, F.R.E.S.

Chakriia, gen. n.

Head wide; eyes large, but not prominent, and widely divergent on the vertex; front greatly narrowed by the insertion of the antennae, longitudinally, widely, and shallowly grooved between the eyes above the insertion; the epistoma separated from the front by a narrow, deep, transverse groove above the antennal cavities, antennal cavities large, elongate, and oblique. Antennae short and stout, first segment very stout, twice as long as wide, second segment subequal to the first, pyriform, third segment slightly shorter than second and much more slender, fourth segment two-thirds the length of second and of the same width, fifth to eleventh segments triangular, antennal punctures are confined in a large round pit on the distal margin of the serrate segments. Cheeks deeply grooved for the reception of the antennae when at rest. *Pronotum* transverse, with its anterior margin narrower than the posterior, anterior margin sinuate, with the median lobe broadly rounded, lateral margins subparallel, slightly divergent toward the basal half, then incurved to form the posterior angles which are rounded, base sinuate, with the median lobe wide and truncate. Scutellum large, triangular, and acute at apex, base dilate. *Elytra* as wide as the pronotum if not narrower, humeral angle acute, base sinuate, sides parallel at basal fourth, broadly, arcuately constricted at middle, arcuately expanded behind the middle, then obliquely narrowed to the tips, which are separately, broadly rounded, and serrate. *Episterna* of the prothorax definitely grooved for the reception of the antennae when resting; prosternum rather wide, and flat, produced anteriorly to form a broad bilobed chin rest, which forms an angle with the disc, the posterior projection acute at the tip, with its lateral margins elevated. Sternal cavity formed entirely by the metasternum, which is broad and convex, posterior coxae greatly dilated on the outer margin, with their posterior angles acute and prominent. *First abdominal segment* slightly longer than the following ones united, disc convex, the rest of the segments subequal. *Legs* short, rather stout; femur moderately stout, slightly swollen and flattened, the anterior and middle pairs toothed along the inner margin, the posterior pair unarmed. Tibiae distinctly curved outward and slightly flattened, anterior and middle pairs distinctly carinate on the outer margin, the posterior pair cylindrical and slightly less curved. Tarsi small, short, and convex, the first three segments equal, and the fourth half as long as the third, the fifth as long as the rest united, and cylindrical. Claws strongly cleft to the base, with the inner teeth touching one another.

Genotype: *C. ruficolla*, sp. n.

Distribution. Siam.

In general, this genus resembles *Raeboscelis*, but can be distinguished from it, by the chin piece of the prosternum being very long, wide, and very deeply bilobed; elytra more parallel with their tips separately rounded; tibiae not dilated at the tips; I, therefore, place this genus between *Agrilus* and *Raeboscelis*.

I name this genus after Chao Praya Chakri, the first king of the Chakri dynasty of Siam.

Key to the Species.

a. Antennal groove of the episternum distant from the lateral margin of the pronotum; head and pronotum red, elytra black with transverse, white pubescent markings . . . . . *ruficolla* (genotype).

b. Antennal groove of the episternum adjacent to the lateral margin of the pronotum; colour green, without markings . . . . . *prachadhipoka*.

1. **Chakriia ruficolla,** sp. n.

Elongate, subconvex. Head and pronotum brilliant red; elytra black, with faint brassy reflections at base, and bluish at apex, basal fourth covered with recumbent, flat, greyish pubescence, with its posterior margin transverse and straight, middle with similar pubescence, but denser, with anterior and posterior margins oblique and transverse. Underside and legs black with brassy reflections; meta-episternum and the outer portion of the posterior coxae densely covered with pubescence similar to that above; abdomen almost glabrous except for the thickly pubescent patch on each side of the lateral margin near the suture of the first segment. *Head* very coarsely punctate and deeply rugose; vertex brilliant red; front black with brassy reflections; epistoma black; antennae black with brassy reflections. Eyes large but not prominent; mandibles large with apical tooth acute. *Pronotum* roundly, deeply, densely, and coarsely punctate, punctuation on the disc slightly finer, anterior margin produced over the vertex, lateral margins curved from the lower margin of the eyes upward, slightly divergent toward the basal third where they expand slightly, then angularly incurved to form the posterior angles, posterior margin sinuate with the median lobe wide and truncate, surface even, covered with recumbent, flat pubescence, very dense at the anterior angles and sparse on the rest of the disc. *Elytra* coarsely punctate, and transversely rugose; the humerus with a distinct, round, smooth tubercle. Scutellum large, acute at apex, with its surface smooth. *Underside* evenly, rather coarsely punctate, and flatly rugose, surface pubescent; prosternum very deeply and broadly emarginate on the anterior margin, disc rather wide and flat, the posterior projection with the lateral margins strongly elevated; episternum very deeply grooved for the reception of the antennae. First abdominal segment longer than the rest combined, last segment rounded. *Legs* rather stout; tibiae strongly outcurved; tarsi very short and slender.

Size. Length, 8·5 mm.; width, 3 mm.

Type locality—Siam: Chiengmai, 24 October, 1920.
Type—American Museum of Natural History.
Described from a single specimen.

2. **Chakriia prachadhipoka,** sp. n.

Colour above, brassy green, which becomes brilliant red toward the lateral margins of the elytra. Underside olive green; legs with slight brassy reflections, both above and below the surface is clothed with recumbent, flat, greyish pubescence, evenly and sparsely. *Head* coarsely punctate and rugose; epistoma green; antennae brassy; eyes large, but not prominent; mandibles large with apical tooth acute. *Pronotum* coarsely punctate and rugose to form a series of more or less concentric circles around the centre of the disc, anterior margin slightly but distinctly produced over the vertex, lateral margins curved from the lower margin of the eyes upward, slightly divergent and widely explanate, then incurved from the middle to form the posterior angles, which are rounded, base sinuate with the median lobe wide and truncate. *Elytra* narrower than the pronotum, rather coarsely and roundly punctate, transversely rugose; humerus without a tubercle. Scutellum large, acute at apex, with surface smooth, colour green. *Underside* evenly, rather coarsely punctate, flatly rugose, surface shiny; prosternum very deeply and broadly emarginate on the anterior margin, disc rather wide and flat, posterior projection with sides slightly elevated; the antennal groove on the episternum is formed by the shallow groove of the episternum along one side and by the overlapping of the lateral margin of the pronotum along the other side. First abdominal segment longer than the rest united, last segment truncate, with the angles rounded; the pygidium tridentate, with the intervals finely toothed. *Legs* medium; tibiae strongly outcurved and carinate on the outer margin of the

anterior and the middle pairs, the posterior pair cylindrical; tarsi slender and short, the first three segments equal, the fourth segment half the length of the third, and the fifth as long as the four united.

Size. Length, 9 mm.; width, 3 mm.

Type locality—Siam: Chiengmai, 20 October, 1920.
Type—American Museum of Natural History.
Described from a single specimen.

I name this species after King Prachadhipok of Siam in gratitude for having made my studies in Entomology possible.

My sincere thanks are extended to A. J. Mutchler of the American Museum of Natural History for the privilege of studying these two forms.

EINE NEUE DOLICHOTACHINID—ART AUS SÜD RHODESIEN (DIPT., SARCOPHAGIDAE)

Von B. B. Rohdendorf.

Dolichotachina **cuthbertsoni,** sp. n.

♂: Stirn breit, $\frac{4}{5}$ der Augenborste einnehmend; 7 Paare Frontalborsten: vordere 5 Paare mittelstark und vorne gebogen, vorletztes Paar stark von vorderen entfernt, länger und stärker, am hinten und innen gebogen; hinteres Frontalborstenpaar schwach, nach hinten gerichtet, Ozellarborsten sehr lang und stark, seitwärts gerichtet; 2 Paare starker Orbitalborsten und mit vielen kürzeren Börstchen an den Stirnseiten; äussere Vertikalborsten ziemlich kurz; Stirnstrieme fast parallelseitig, in der Mitte etwas verschmälert und deutlich breiter als die Stirnseite; Vorderrand der Wangen nur mit einer Reihe von starker, langer Borsten; 3. Antennenglied $2\frac{3}{4}$ mal so lang als das 2; Arista kurz, aber deutlich gefiedert, im Basaldrittel verdickt; 2. Glied der Arista etwas verlängert; Eckenborsten sehr lang, Vibrissenleisten ganz nackt; Taster mittellang, am Ende etwas verdickt; Rüssel dünn: Mentum $3\frac{1}{2}$ mal so lang als hoch; Backen nicht besonders schmal, *ca.* $\frac{1}{5}$ des Augenhöhe einnehmend, ziemlich zerstreut schwarz behaart. Acr. fehlend gänzlich; dc. 2 + 2—postsuturale Borsten schwächer und unregelmässig; sa. 2—hinteres Paar sehr lang und gerade: diese Borsten $1\frac{1}{2}$—Mal länger als Thoraxhöhe (!); ia. fehlend; vordere Beine stark verlängert: vordere Coxae zylindrisch, *ca.* $\frac{2}{3}$ der Schenkellänge; vordere Schenkeln mit zerstreuten, aber langen Borsten; vordere Schienen anterodorsal mit einer Reihe gleichlanger, dünner Borsten, posterodorsal mit mehrreihiger, dünner, nicht besonders langer Borsten und mit einer, sehr langen und stark an der Basis verdickter Borste; posteroventral diese Schiene mit zerstreuter (6–7) Reihe sehr langer Borsten—zwei längste Borsten deutlich länger als die Vordertarsen, Vordertarsen lang, mit zylindrischen, nicht verdickten Glieder.—Abdomen etwas konisch; 3. und 4. Tergit in der Mitte des Hinterrandes mit ein Paar sehr langen Borsten, welche am 4. Tergit deutlich länger.—Körper schwarz, Kopf dicht silbergrau bestäubt: Mitte de Stirnstrieme, Antennen, Taster und Vibrissenecken mattschwarz; Thorax samtschwarz. mit breitem, doppeltem silbergrauem Längsstreif, dieser Streif zwischen der dc. liegend; Schildchenende, Meso-, Ptero- und grösster Teil der Sternopleura dicht silberweiss bestäubt; Flügel glashell, Adern schwarz an der

Flügelbasis gelb; Beine schwarz: Apikalhälfte der Vorderschienen und die ganze Vordertarsen braun; Abdomen schwarz, nicht besonders dicht grau, zum Teile bräunlichgrau bestäubt, mit undeutlicher Schachzeichnung und stark abgegrenzten runden schwarzen Flecken; 2. Tergit fast ganz schwarz, nur mit schmaler Hinterrandbinde; 3. und 4.

Fig. 1.—*Dolichotachina cuthbertsoni*, sp. n., Vorderbeine des ♂.

Tergit mit drei runden Flecken neben dem Hinterrande und gut entwickelter Schachzeichnung; 5. Tergit am Hinterrande mit drei verchmolzenen Flecken; Ventralseite des Abdomens dunkel gefärbt; Genitalien glänzend schwarz.—♀ unbekannt.—Körperlänge 5 mm.

1 ♂ aus Süd Rhodesien: Balla Balla, 13.i.1933 (*A. Cuthbertson*). Diese Fliege neben dem Eingange des Ameisennestes (*Ponera custodiens*) gefangen.

Mr. A. Cuthbertson hat den typus an das " British Museum " geschenkt.

Diese Art von nordafrikanische *D. marginella*, Wied., durch anders gebauten Vorderbeine, Chätotaxie, und Färbung des Thorax, leicht kenntlich.

NOTES ON SOME BRED EXOTIC EUPELMIDAE (HYM. CHALC.)

By Ch. Ferrière, D.Sc.

Among a large number of African and Asiatic Eupelmidae which I have begun to study, are several species which have been bred and which may be, in some cases, of economic importance. To avoid long delay, I publish here descriptions and notes on these species, leaving for later papers the monographic discussions of the genera to which they belong.

Eupelmus **curculionis**, sp. n.

♀. Body black, with some greenish reflections on the cheeks, in the antennal depression, on the occiput, the pronotum and the sides of the propodeon; base of abdomen with violaceous reflections. Antennae with the scape orange-yellow, the flagellum black with greenish reflections on the pedicel and the 2 or 3 first funicle joints and violaceous reflections on the following joints. Legs black; the middle and hind metatarsi whitish. Wings strongly infuscated from the end of the submarginal vein, with a clearer stripe below and along the

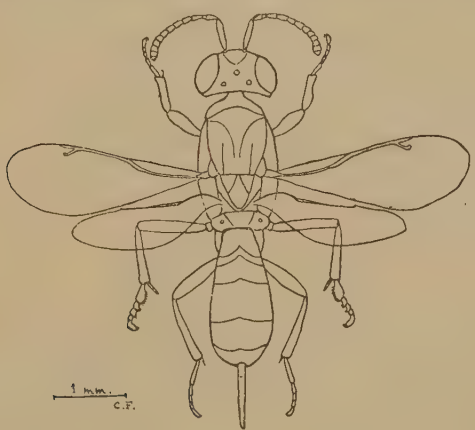


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Fig. 1.—*Eupelmus curculionis*, sp. n., ♀.

marginal and postmarginal veins; the tip of the wing also lighter. Ovipositor sheaths with the base black, a broad white ring before the middle and the posterior half brown. *Head* transverse, very narrow behind the eyes. Vertex broad, margined behind by a fine carina. Ocelli forming a low triangle, the lateral ocelli as far distant from the eye-margin as their own diameter, and nearer to the occipital margin than to the front ocellus. Eyes large, oval, their ciliation shorter but as dense as on the front. Face rugulose, dull, the antennal depression finely striate, the sides converging above. Ciliation on front and face rather long, sparse, white. Antennae inserted level with the base of the eyes, the scape not farther away from each other than from the eye-margins. Scape cylindrical, not reaching to the

from ocellus; pedicel narrow, about 2½ times longer than broad; annellus small, subquadrate; 1st funicle joint a little longer than the pedicel; the following joints gradually shorter and broader, the 6th and 7th quadrate, about three times broader than the 1st; club with three joints, short, not longer than the 2 preceding joints together. *Thorax* elongate, finely rugulose, dull, except at the middle of the propodeum which is smooth and shining. Pronotum short, with a row of long black setae along its hind margin. Mesonotum longer than broad, the parapsidal furrows not very strong, converging strongly towards the middle, then proceeding parallel to the hind margin; scutellum narrowed behind; axillae large, triangular, their inner angles only slightly separated in the middle. Mesopleurae with a very fine reticulation, which weakens toward the hind margin. Propodeum narrow in the centre, without carina, rounded on the sides where it is covered with white ciliae, spiracles large, oval. Wings reaching to the tip of the abdomen; marginal vein as long as the submarginal, and about 4 times longer than the stigmal vein; postmarginal vein as long as the stigmal. Dorsal ciliation long and sparse at base of wing, those below the marginal vein and becoming gradually shorter towards the tip of the wing. Front legs with the femora not much swollen, rounded below, the tibiae shorter than the femora; middle legs strong, the tip of the femora flattened, the end of the tibiae broad, the tarsi short; tibial spur a little shorter than the metatarsus; hind legs with the femora shorter and thicker and the tibiae a little longer than at the middle legs. *Abdomen* as long as head and thorax united, depressed above, smooth at base, becoming more rugulose-reticulated towards the tip; 1st to 4th segments angularly emarginate at their hind margin, the 1st more strongly than the others. Sides of segments covered with white hairs, the 6th segment with long black hairs on the sides. Ovipositor almost as long as half the length of the abdomen.

Length: 4–4·5 mm., ovipositor 0·8–1 mm.

Dutch East Indies, Banka Isl., Toboali, 4 ♀♀ *J. v. d. Vecht*.

Host. ***Lophobaris piperis*, Marsh., the pepper weevil.**

This species belongs to the group of *Eupelmus* with dark wings, as *E. saissetiae*, Silv., in Africa and *E. niger*, Ashm., in Hawaii. It is distinguished by the black dull coloration of the body and the clear stripe below the marginal and postmarginal veins.

Eupelmus javae, Girault.

Eupelmus javae, Girault, "New Javanese Hymenoptera," Privately printed, Washington, 28.iii.1917, p. 2.

A series of 3 ♀♀ and 9 ♂♂ from Ceylon, Mahaoeliya, 21.x.1926, bred by Dr. *J. C. Hutson* from *Araeocerus jasmonatus* in pods of *Tephrosia candida*. It is probably a parasite of the Eurytomid, *Aximopsis javanus*, Girault, which was bred at the same time from the same pods in Ceylon by Dr. Hutson and in Java, according to Girault's notes. This series agrees in all respects with the description given by Girault of specimens reared in Java from the same *Araeocerus*. The size, given by Girault as 3·2 mm., varies in the female from 2·2 to 3·8 mm. and in the male from 2·2 to 2·7 mm.

It is closely related to *Eupelmus tachardiae*, How., but may be distinguished especially by the longer ovipositor, which is as long or a little longer than half the length of the abdomen, by the darker legs and by the stouter body and thicker hind femora of the male.

Anastatus **dasyni**, sp. n.

♀♂. Body of female dark with metallic-green reflections on vertex, occiput, pronotum, posterior end of mesonotum, scutellum and end of abdomen; purple reflections may be found

on the sides of the pronotum, anterior part of the mesonotum and middle of abdomen. Body of male greenish, with purple reflections on vertex, scutellum, axillae and middle of abdomen. Female with the posterior half of the 1st abdominal segment white. Antennae black, scape yellow; the male with also the pedicel and the first two funicle joints more or less yellowish-brown. Legs black; the female with only the tarsi whitish, the male with also the trochanterata and front and middle tibiae whitish. Front wings of female infuscated from the curve of the submarginal vein, with two hyalin spots opposite below the middle of the marginal vein, and the tip of the wing lighter; the spots may be united in the middle, forming a curved hyalin stripe across the middle of the wing. Wings of male hyalin.

♀. *Head* transverse, almost truncate just behind the eyes, rounded in front; frontovertex narrow, shagreened; ocelli in a regular triangle, the lateral ocelli much closer to the eye-margin than to the front ocellus. Seen from in front, the head is rounded, the eyes large, their inner margin converging above; cheeks short. Antennal depression shallow and small. Antennae inserted on each side of the face, not far from the base of the eyes; scape narrow, cylindrical, reaching the level of the front ocellus; pedicel triangular, 1½ times longer than broad; annellus quadrate or a little longer than broad; 1st funicle joint as long

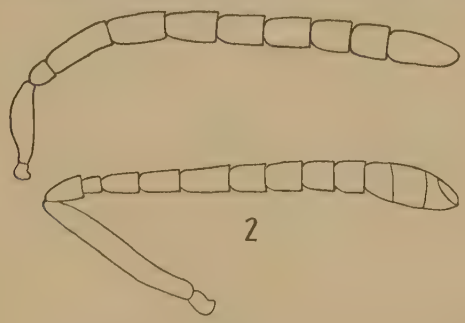

FIG. 2.—*Anastatus dasyni*, sp. n. Antenna ♂ (above), ♀ (below).

as the pedicel, narrow; twice as long as broad; the following joints gradually shorter and broader, the 7th scarcely broader than long; club with 3 joints, as long as the 3 preceding joints together. Pronotum large, triangular, as broad behind as the mesonotum and almost as long. Mesonotum finely punctate, dull, slightly shining only in the posterior part of the middle depressed portion; parapsidal furrows complete; dorsum of mesonotum convex in front, depressed in the posterior half. Scutellum with a fine close punctation, dull, as long as broad, rounded behind; axillae small, much separated in the middle. Propodeon very short, in the middle, enlarged and rounded on the sides. Mesopleurae shining, very finely punctate. Wings with the marginal vein shorter than the submarginal and almost 5 times longer than the stigmal vein; postmarginal vein a little longer than the stigmal. Legs elongate, specially the middle legs; front and hind femora somewhat thickened; spur of middle tibiae strong, a little longer than the metatarsus; this and the following tarsal joints short with small black spines below. *Abdomen* shorter than the thorax, broadened behind, where it is scarcely broader than the thorax; tergites finely shagreened. Ovipositor scarcely protruding.

♂. Differs from the female by the form of the antennae, the thorax normal, the abdomen shorter, oval, the legs narrower with a small middle tibial spur and the wings hyalin. Antennae with the scape short, not much thickened; pedicel rounded; funicle with 7 joints, the 1st almost as long as the scape and about 3 times longer than broad, the following

gradually shorter, the 7th still a little longer than broad; club solid, almost as long as the two preceding joints united.

Length: ♀ 1·8–2·1 mm.; ♂ 1·2–1·6 mm.

Dutch East Indies, Banka Isl., 7 ♀♀, 8 ♂♂, 1930 (*J. v. d. Vecht*); Malaya, Serdang, 3 ♀♀, 1 ♂, 18.ix.1934 (*N. C. E. Miller*).

Host. Eggs of *Dasynus piperis*, China, the pepper bug.

This species has already been described and figured under the name of *Anastatus* sp. by Dr. J. van der Vecht, in his work on *Dasynus piperis*, China (Leiden 1933, p. 68). He shows that it attacks also the eggs of other bugs, including *Physomerus grossipes*, F., and *Nezara viridula*, L.

Anastatus **piezosterni**, sp. n.

♀♂. Bluish-green with purple reflection on vertex, frons, face and abdomen. Antennae black, scape yellow; the male with also the pedicel yellowish. Legs of female entirely dark metallic, the tarsi brown; of male with tibiae and tarsi yellow, the hind tibiae brownish along the back and at the tip. Wings of female slightly infuscated with the base and a transverse stripe below the middle of the marginal vein hyalin; wings of male entirely hyalin.

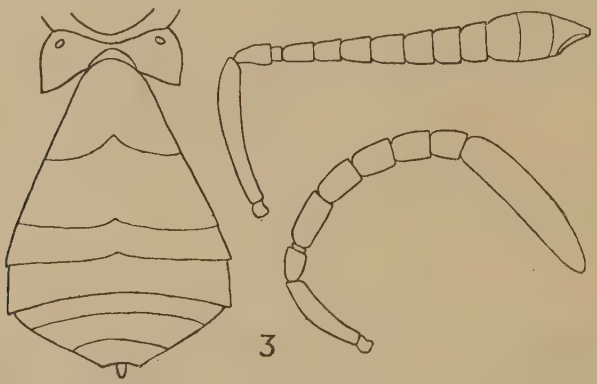

Fig. 3.—*Anastatus piezosterni*, sp. n. Abdomen ♀, antenna ♀ (above), ♂ (below).

♀. *Head* transverse, rounded behind the eyes; ocelli in a regular triangle, the lateral ocelli as far distant from the eye-margins as from the front ocellus. Seen from in front the head is rounded, the eyes short, oval, the cheeks as long as half the length of the eyes and covered with long black ciliae directed downward. Face and vertex finely shagreened, shining. Antennal depression shallow, scarcely indicated. Antennae inserted level with the base of the eyes, twice more distant at base than from the eye-margins; scape cylindrical, short, not reaching to the front ocellus; pedicel narrow, about 1½ longer than broad; annellus subquadrate, scarcely longer than broad; 1st funicle joint a little shorter than the pedicel, the following gradually shorter, the 4th subquadrate, the 7th broader than long; club with 3 joints, almost as long as the 4 preceding joints together. *Thorax* finely shagreened, more strongly reticulated on the middle part of the mesonotum and on the scutellum; the more elongate reticulations on the scutellum give it the aspect of being striate. Pronotum strongly narrowed in front. The parapsidal furrows meet in a curve before reaching the hind margin of the mesonotum. Axillae rather large, a little less distant in

the middle than their own breadth. Propodeon very short in the middle, broadened on the sides, with large oval spiracles. Mesopleurae very finely longitudinally striate, almost smooth. Wings with the marginal vein as long as the submarginal: 4 times longer than the small, curved stigmal vein: postmarginal vein about twice as long as the stigmal. Discal ciliation close from the curve of the submarginal vein, somewhat closer in the first infuscated portion. Legs strong, front femora a little thickened: spur of middle tibiae scarcely longer than the metatarsus; the tarsal joints with small denticulation below: hind legs with tibiae and tarsi narrower and more elongate. *Abdomen* triangular, shorter than the thorax. Ovipositor scarcely protruding.

♂. *Head* transverse, finely shagreened. Eyes rounded, cheeks almost as long as the eyes. Antennae inserted near the middle of the face: scape short and a little broadened in the middle; pedicel small, scarcely longer than broad: annellus very short, transverse: funicle with 5 joints, the 1st a little shorter than the scape, twice as long as broad, the 2nd to 5th gradually shorter, the 5th little longer than broad: club entire, almost as long as the funicle. *Thorax* normal, with complete parapsidal furrows, shagreened. Wings with marginal vein only twice as long as the stigmal: postmarginal vein a little longer than the stigmal. *Abdomen* shortly ovate, a little shorter than the thorax.

Length: ♀ 2 mm.; ♂ 1·8 mm.

Uganda, Kampala, 25 ♀♀, 9 ♂♂, 4.x.1929 (*H. Hargreaves*).
Host. Eggs of *Piezosternum* sp. (Pentatomidae).

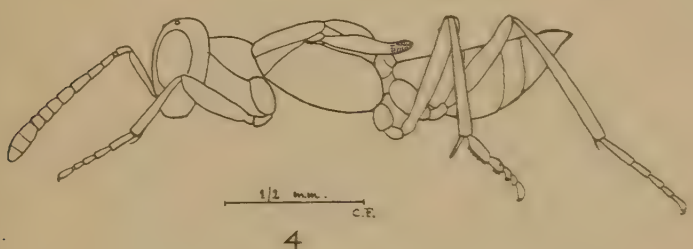

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Fig. 4.—*Anastatus brevipennis*, sp. n., ♀.

Anastatus **brevipennis**, sp. n.

♀. *Head* black, with greenish and purple reflections. Thorax dark reddish-brown, pronotum above, a stripe along the middle of the mesonotum, the scutellum and the propodeon blackish, with green reflection on the pronotum and purplish reflections on the mesonotum; mesopleurae blackish anteriorly, reddish posteriorly, the two colorations not sharply separated in the middle. Abdomen greenish-black, with a white spot on the second half of the first segment. Antennae black, scape yellow. Legs dark brown, with base and tip of tibiae narrowly and the tarsi yellowish. *Head* transverse, rounded behind the eyes, finely shagreened; ocelli very small, in a regular triangle, the lateral ocelli as far distant from the eye-margins as from the front ocellus. Eyes oval; cheeks as long as half the length of an eye. Antennal furrows narrow, converging and meeting above. Antennae inserted below the base of the eyes, farther away from each other than from the eye-margins: scape elongate, narrow, reaching to the front ocellus: pedicel about 1½ times longer than broad: annellus very short, transverse; 1st funicle joint as long as, but narrower than the pedicel, about twice as long as broad; the following joints gradually shorter and broader, the 7th broader than long; club with 3 joints, as long as the 3 preceding joints together. *Thorax*

oval, elongate, a little narrower than the head. Pronotum large, triangular, depressed, as broad but a little narrower than the mesonotum. Mesonotum longer than broad, with complete parapsidal furrows, which are curved at apex and not much closer together behind than in front; the middle of mesonotum slightly depressed, finely rugulose anteriorly, smooth and shining on the posterior third; scutellum and axillae elongate, finely reticulate, dull; mesopleurae very finely striate, shining. Wings very short, reaching only to the middle of the first abdominal segment, slightly curved at apex, hyalin in the middle, infuscate at the base and on the last third part, which is covered with dark ciliae; the thickened submarginal vein ends in a short stigmal vein, without reaching the margin of the wing. Legs elongate, the middle legs almost as long as the body; spur of middle tibiae as long as the metatarsus, which is broadened, and has, below, a row of small denticles, black at tip. *Abdomen* a little shorter than the thorax, smooth and shining in front, finely shagreened near the tip, not much broadened behind, where it is not broader than the thorax. Ovipositor scarcely protruding.

Length: 1·5–1·7 mm.

Uganda, Kampala, 13 ♀♀, 20.vii.1930 (*H. Hargreaves*).

Host. Eggs of a bug on leaves of "omujaja omutono."

This species is characterised by its small size, short wings and the reddish-brown coloration of its thorax.

Anastatus blattidarum, Ferr.

Anastatus blattidarum, Ferrière, 1930, *Bull. ent. Res.*, **21**: 33.

A new series of this species received from Sudan, where it seems to be rather common, gives me the opportunity to describe the male.

♂. Body entirely dark with greenish and purple reflections. Antennae brown, scape yellowish at base and below. Legs brown, with the front and median tibiae, the base of the hind tibiae and all the tarsi yellowish. Wings hyalin. *Head* similar to that of the female. Antennae thicker, with 11 joints; scape short, reaching just to the front ocellus; pedicel triangular, not much longer than broad; annellus very small, transverse; funicle with 7 joints, the 1st elongate, more than twice longer than broad and about twice as long as the pedicel, following joints gradually shorter, the 7th subquadrate; club solid, as long as the 3 preceding joints together. *Thorax* normal, parapsidal furrows complete, scutellum finely striate, convex, as long as the mesonotum. *Abdomen* narrower than the thorax, but about as long. Legs with the femora slightly swollen, the middle legs not longer than the hind legs.

Length: 1·4–1·6 mm.

Described from a series of 3 ♂♂ bred together with 12 ♀♀ at Khartoum by *R. Cottam*, from an egg-case of *Blattella suppellectilium*.

Mesocomys **orientalis**, sp. n.

♀. Black with cupreous reflections on frons, vertex and thorax; face, cheeks and temples shining green; mandibles yellow. Pronotum aeneous-green above. Mesopleurae aeneous-blue; abdomen aeneous, brownish at base. Antennal scape yellow, with a green spot at base below, pedicel black with metallic reflections, flagellum brown, the club darker than the funicle. Legs brown with metallic reflections, front and middle tibiae and tarsi more yellowish, hind tibiae and tarsi more blackish. Wings infuscated in the middle, hyalin at base and at tip, and on two rounded spots opposite each other below the marginal vein. *Head* transverse, narrowed behind the eyes; eyes oval, converging very little above;

fronto-vertex broad, smooth and shining, the vertex only very finely transversely striate. Ocelli in a regular triangle, the lateral ocelli half as far distant from the eye-margin as from each other. Face shagreened, the sides of the antennal depression acutely margined, converging above. Cheeks finely striate, with rather long ciliae above the mouth. Antennae inserted a little above the sides of the mouth, below the eyes; scape as long as the antennal depression; pedicel triangular, twice as long as broad at the end; annellus small, transverse; all funicle joints short and transverse, increasing in breadth from the 1st to the 7th, which is about thrice as broad as long; club with 3 joints, pointed at tip, as long as 5 preceding joints together. *Thorax* with the pronotum broad, rectangular, margined in front, where it bears a few long erect hairs. Mesonotum very finely shagreened, almost smooth; parapsidal furrows strong and deep, parallel at first, then converging rapidly to a transverse furrow before the end of the mesonotum; sides and end of mesonotum slightly elevated and margined. Scutellum finely striate, with two strong triangular depressions at base. Propodeon very short. Mesopleurae very finely striate, almost smooth, specially anteriorly. Wings reaching beyond tip of abdomen. Submarginal vein slightly curved down then up at end; marginal vein relatively short, not much longer than the postmarginal; stigmal vein large, curved, a little shorter than the postmarginal. Discal ciliae black, thickened and scale-like in the middle, specially before the hyalin spots, thinner and sparser towards the tip of the wing. Legs as in *Anastatus*; front and hind femora slightly swollen; middle tibial spur strong but a little shorter than the metatarsus; this and the next tarsal joint with small black spines below; hind tarsus elongate, almost as long as the tibiae, the metatarsus as long as the four other joints together. *Abdomen* narrower than the thorax, broadest in the middle. Ovipositor not protruding.

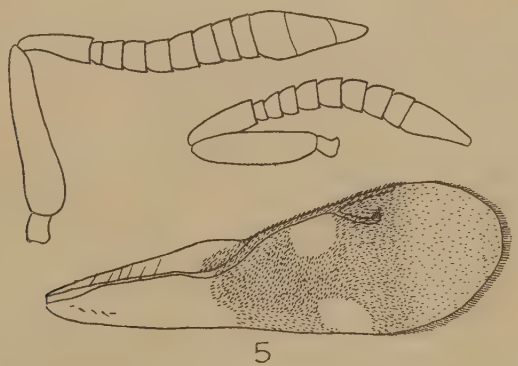


Fig. 5.—*Mesocomys orientalis*, sp. n. Antenna ♀ (left), ♂ (right), and wing of ♀.

♂. Head and thorax greenish, abdomen aeneous; antennae yellow; legs entirely yellow, only the hind coxae and some slight reflections on the hind femora greenish. *Head* similar to that of the female; fronto-vertex very finely transversely striate; antennae with the pedicel long, almost 3 times as long as broad; funicle joints all short and transverse, club solid, as long as 3 preceding joints together. *Thorax* normal; mesonotum not depressed, more strongly shagreened; parapsidal furrows narrow and fine; scutellum convex, without depressions at base. Wings as in the female, but more slightly infuscate in the middle, the hyalin spots less conspicuous. Middle tarsi normal. Hind legs stronger than the middle legs. *Abdomen* depressed, triangular, a little narrower and not longer than the thorax.

Length: ♀ 2·4–2·7 mm; ♂ 2–2·4 mm.

Burma, Rangoon, 14 ♀♀, 10 ♂♂, 1933 (*F. J. Meggitt*).

Host. Unknown Lepidopterous eggs, laid in regular rows.

This species is very closely related to the African *Mesocomys pulchriceps*, Cam., but may be distinguished from it by the smooth and shining fronto-vertex, the more strongly margined antennal depression, the green face, the light middle tibiae and tarsi, the shorter antennae, where the last funicle joints are more transverse, and the stronger scale-like ciliation in the middle of the fore-wing. It is the first species of this genus known from Asia, the other species being found only in South and Central Africa.

Calosota **sinensis,** sp. n.

♀♂. Head black with faint violaceous reflections on frons and face, and greenish spots below the front ocellus and above the antennal depression. Thorax dark bluish-green, scutellum and mesopleurae black. Abdomen aeneous-black, base of first segment and sides of the next segments greenish. Antennae black, scape more or less yellowish. Legs with the coxae, the femora and the front tibiae dark brown with some metallic reflections; middle and hind tibiae light brown with a darker ring near the base; tarsi yellow.

♀. *Head* transverse, sharply narrowed behind the eyes. Vertex broad, ocelli in a regular triangle, the lateral ocelli as far distant from the eye-margin as their own diameter. Eyes large, oval, densely covered with white hairs. Vertex and frons punctate, the punctation stronger and more irregular on the face; clypeus almost smooth. Cheeks with a sharp groove between eye and mandibles. Antennal depression shallow, divided in two furrows

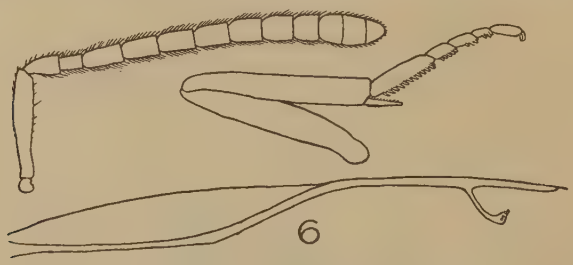


Fig. 6.—*Calosota sinensis*, sp. n., ♀, antenna, middle leg and wing nervature.

which meet above and are slightly carinated on the sides. Antennae inserted level with the base of the eyes, the base as far distant from each other as from the eye-margins; scape narrow, reaching scarcely to the front ocellus; pedicel about twice as long as broad; annellus narrow, almost as long as the pedicel; 1st funicle joint 1½ times as long as the annellus; the following joints gradually shorter and broader, the 7th quadrate; club with 3 joints, slightly shorter than the 2 preceding joints together. *Thorax* reticulate on mesonotum and scutellum; reticulation on mesonotum small, irregular, on scutellum slightly elongate. Mesonotum broader than long, without parapsidal furrows or depression, but with long white ciliae on the sides. Scutellum large, convex, with a broad base against the mesonotum; axillae small, triangular, on the sides of the scutellum. Propodeon narrow in the middle, broadened on the sides, with long white ciliae; spiracles large, rounded. Mesopleurae finely punctate and shagreened on the anterior half, quite smooth behind. Wings large, reaching to the tip of the abdomen; costal cell broad; submarginal vein twice longer than the marginal, this latter thrice as long as the stigmal vein; postmarginal vein not quite twice as long as the stigmal; discal ciliae regularly placed over the entire wing, a

little longer and sparser below the submarginal vein. Legs with the front femora slightly swollen; middle legs not longer than the hind legs; spur of middle tibiae as long as half the metatarsus; this and the following joints with rows of small teeth below. Abdomen depressed, flat above, pointed behind, twice as long as the thorax; 1st segment strongly incised behind, the following segments only slightly emarginate behind, all smooth, finely shagreened; 7th segment narrow, triangular, compressed from the sides, rugulose, dull, longer than the preceding segment. Ovipositor scarcely protruding.

♂. Similar to the female, from which it differs only by the shorter abdomen, not much longer than the thorax, and by the form of the antennae. Scape short, slightly broadened in the middle; pedicel about 1½ times longer than broad; annellus narrow, subquadrate; 1st funicle joint longer than the pedicel, about thrice as long as broad; the following joints gradually shorter, but all longer than broad; club as long as 2 preceding joints together.

Length: ♀ 5·5–6 mm.; ♂ 4 mm.

China, Shanghai, 1930–31 (*O. Piel*).

Hosts. 5 ♀♀, 1 ♂ bred as ectoparasites on the larvae of *Pareumenes quadrispinosus*, Sauss.; 3 ♀♀, 1 ♂ obtained from cells of *Prosopis* sp.

A NEW SPECIES OF *ANOMALA* (COL. RUTELIDAE) FROM BURMA

By Dr. F. Ohaus.

(*Mainz.*)

Anomala (*Aprosterna*) **meggitti**, sp. n.

Allied to *A. semiusta*, Arr. Oblong ovate, nearly parallel-sided and not very convex. Pale testaceous with the disk of the pronotum, the elytra along the scutellum and the suture more or less brown. Clypeus trapezoidal, nearly straight in front, with the reflexed margins dark brown; forehead impressed or flattened, like the clypeus densely rugosely punctured; vertex finely and singly punctured, not darkened. Pronotum slightly convex and feebly shining, like the vertex and scutellum finely and dispersely punctured, the basal suture not interrupted; the colour varies from uniformly testaceous to testaceous with two indistinct brown patches on the disk or uniformly brown with small testaceous borders. Scutellum uniformly pale testaceous. Elytra regularly punctate-striate, the row of punctures separating the two secondary costae in the subsutural interstice only in the basal third irregular; shoulders prominent, the whole surface widely and very finely punctured; along the scutellum and suture, sometimes also from the humeral to the apical callus indistinctly brown vittate. Pygidium, sides of abdomen and metasternum confluently and somewhat coarsely punctured and very scantily hairy. Anterior tibiae tridentate.

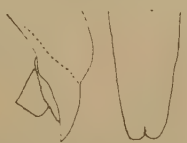


Fig. 1.—*Anomala* (*Aprosterna*) *meggitti*, sp. n., aedeagus.

♂. Eyes prominent; antennal club very long; the inner claw of the anterior tarsi alone cleft. Aedeagus see fig. 1.

Length 10·5–12 mm. ♂.

Burma: Rangoon, 1933–34 (Prof. *F. T. Meggitt*), Pegu (Atkinson coll.). *Type* in British Museum (Natural History).

THREE NEW SPECIES OF *OTIDOGNATHUS*, LAC. (COL. CURC.)

By Klaus Günther.

(*Dresden.*)

For my studies on *Otidognathus*, Lac., I have received the material preserved in the British Museum, and accord my respectful thanks to Mr. G. J. Arrow for his great kindness in sending it. The material contains three species previously unknown to science, and as it is doubtful if my projected monograph of *Otidognathus* can be published, I describe below the new species examined by me.

Otidognathus **rarus**, sp. n.

♀♀. Colour chestnut-brown or (rarely) dark orange, shining, with black markings, surface of pronotum and elytra finely punctulate or shagreened. Head and rostrum reddish-brown above, but eyes and rostrum in the apical third, on the sides and below, black. Rostrum in the ♂ quite linear, with two rows of low tubercles above, very little curved and bare in the ♀. Antennae black, the club in the form of a hatchet, not at all like a shoe, its pubescent part distinctly shorter than the rest. Prothorax widest at the base and gradually narrowed to the middle, there distinctly constricted, at the apex tubulate. Collar and sometimes a narrow band at the base and a spot in the middle of the disk and another on each side (not visible from above), black. Scutellum black. Elytra widest at the oblique shoulders, distinctly narrowed from there to the apex; striae 1–5 distinct, 6 and following striae very indistinct. Intervals quite flat. Elytra each with a black spot in the middle between striae 1 and 3, and two others on the lateral margin at one-third and two-thirds from the base respectively, extending from stria 6 to the margin or narrower; the inner posterior edges of elytra black. Pygidium less closely punctate than the elytra, margined with black, with a deep sulcus in the apical half, along the margin, and with a callosity immediately before the apex, not keeled. Pro- and mesosternum black, mesepisterna and epimera with reddish or yellowish spots. Metasternum and metepisterna chestnut-brown or orange-coloured like the elytra, with scattered long yellow hairs on the side. Metepimera black. Abdomen with a lateral spot on the first sternite and three of the same colour on the fifth, the median one larger than the others, the rest of abdomen dull black, not at all shiny. In the males, the fifth abdominal sternite bears a broad shallow impression. Legs reddish- or chestnut-brown; coxae, trochanters, knees, apex of tibiae and tarsi, black.

Long. excl. rostr., 16–19·5 mm.; lat., 7·2–9·5 mm.

1 ♂, 2 ♀♀. China: 1 ♂, North India: 1 ♂, Tonkin: Tourakom (*Vitalis de Salvaza*): in the British Museum. 1 ♂, China, Museum f. Tierkunde, Dresden. 1 ♂, Tonkin: Than Moi (*Fruhstorfer*), Zool. Museum, Berlin. 1 ♂, East India, Naturkundemuseum, Stettin.

A very remarkable species distinguished from all its known congeners by the faintly punctulate, feebly shagreened surface of the pronotum and elytra, the apical sulcus and callosity of pygidium, and the dull black colour of the abdominal sternites.

Otidognathus **nemorivagus**, sp. n.

♀. Chestnut-brown, elytra often lighter than pronotum, very shining, with black markings, not punctulate or feebly shagreened. Head and rostrum black or dark chestnut-brown above, insensibly changing into black from the middle of rostrum. Rostrum slightly

punctulate and keeled, curved and as long as the pronotum, not narrowed or flattened at the apex. Antennæ black, club in the form of a hatchet, not like a shoe. Pronotum widest at the base, very gradually narrowing to beyond the middle, the sides slightly concave, thence constricted and tubulate at the apex. Collar black or piceous, base with a well-marked margin and closely bordered with black in a characteristic manner. Scutellum black. Elytra widest at the shoulders, distinctly narrowing behind; striæ 1–5 distinct, 6 and following striæ indistinct, often almost vanishing, but sometimes (like the others) marked by little black dots. Intervals flat. In the middle between stria 1 and 2 or 1 and 3 one black spot and two other lateral ones at one-third and two-thirds from the base respectively, the anterior one wider, often extending from stria 6 to the margin; the middle spots of the elytra sometimes lacking. The shoulders and the posterior inner edges of elytra black. Pygidium with the punctures gradually more dense and coarse behind, largely bordered with black, and not, or very faintly, keeled. Pro- and mesosternum black, also mesepisterna and mesepimera; metasternum and metepisterna, at least in their anterior part, piceous, the rest black. Abdomen black, but a lateral spot on the first abdominal sternite and the whole of sternite 5 chestnut-brown or piceous. Legs piceous, coxæ, trochanters, knees, apex of tibiæ and tarsi black.

Long. excl. rostr., 21–25 mm.; lat., 10–11·5 mm.

Fig. 1. *Otidognathus rarus*, sp. n., ♂, Tonkin, ⁄ 2⅔; fig. 2. *Otidognathus nemorivagus*, sp. n., ♀, Bhutan, ⁄ 2⅔; fig. 3. *Otidognathus satelles*, sp. n., ♀, Assam, ⁄ 4⅔.

3 ♂♂, Assam, and without locality, Brit. Mus. 1 ♀, Bhutan, Mus. f. Tierk., Dresden.

O. nemorivagus belongs to the group of species with stria 6 of the elytra indistinct, but these species show little relation one to another.

Otidognathus satelles, sp. n.

♂♀. A very small species, wholly shining and black but the elytra reddish-brown with large black markings; sometimes with the elytra piceous or entirely black. Surface of pronotum densely, of elytra moderately or distinctly punctate. Head and rostrum black; rostrum linear and with two rows of very low tubercles in the males, slightly curved and bare in the females, very faintly keeled. Antennæ black, with the club trapezoidal or

almost round or ovate, broader than long or longer, its pubescent part a little shorter than the rest, sometimes of equal length. Prothorax gradually narrowing from the base to before its middle, thence constricted and tubulate at the apex, densely punctate and with a flat sulcus along the basal margin filled with very dense and coarse punctures. Elytra a little depressed in the region of the scutellum, widest at the very oblique shoulders, very distinctly narrowing behind. Striae 1–5 rather deep, 6 and the following striae marked by large punctures, quite distinct; intervals moderately punctulate, the punctures sometimes very conspicuous. Posterior margin broadly and suture black, in the middle of elytra one black spot extending from stria 1 to 5, on the sides a black posthumeral spot extending from stria 6 to the margin. Pygidium sharply keeled, very declivous, with dense and very coarse punctures. Underside coarsely punctate, together with the legs black, but tibiae often reddish-brown.

Long. excl. rostr., 5·6–7·4 mm.; lat., 2·7–3·8 mm.

1 ♂, 4 ♀♀, Assam: Patkai Mts. (*Doherty*); 2 ♀♀, India; Brit. Mus. 1 ♀, Assam: Patkai Mts. (*Doherty*); 1 ♀, Assam: Margherita, iv., v.1889; 1 ♂, Upper Tonkin: Chapa (*Vitalis de Salvaza*); Mus. f. Tierk., Dresden. 2 ♂♂, Sylhet, Chandkira (*Sherville*); 1 ♀, Nemotha, Cachar (*Wood-Mason*); 3 ♀♀, Assam: Margherita, iv., v.1889; Imp. Inst. Ent., London.

Closely related to *Otidognathus turbatus*, Faust, a larger species, which is highly variable in colour but never entirely black on the prothorax and beneath, as is *O. satelles*, sp. n.

NEW SPECIES OF *ELEODES* FROM MEXICO IN THE BRITISH MUSEUM (COL.: TENEBRIONIDAE)

By Frank E. Blaisdell, Sr.

(*Stanford Medical School and Associate in Research, California Academy of Sciences, San Francisco, Cal.*)

There are listed in the Biologia Centrali-Americana, sixty-two species and varieties of *Eleodes* as indigenous to Mexico. Thirteen of these are recorded as occurring both in the United States and Mexico. Nineteen of the Mexican species are not represented in the collection of California Academy of Sciences, nine of these, however, have been examined and studied by the author.

In my Monograph of the Eleodiini, published in 1909 (*Bull. U.S. Nat. Mus.*, 63), a number of new species were described that inhabit the territory along the southern boundary of the United States and may also occur within the northern Mexican States of Sonora, Chihuahua, Coahuila, Nuevo Leon and Tamaulipa. The earlier authors were usually very conservative, and associated variants that were not always conspecific. The true relationships of the species will not be known until the genitalia shall have been studied and the species referred to their proper subgeneric groups.

In series of *Eleodes* from Mexico, recently lent me for study or identification, I have recognised the three species described below as in all probability new to science. Dr. K. G. Blair, of the British Museum, has very kindly permitted me to name and describe them in the interest of the Museum. They appeal to me as of particular interest as will be remarked under each species, as follows:

Eleodes **omissoides,** sp. n.

Form subfusiform, two and one-fourth times as long as wide, widest at middle of the elytra. Colour deep black, surface shining. In colour, lustre and sculpturing similar to *punctigera* described below, but with a facies resembling species belonging to the subgenus *Melaneleodes*, Blaisdell.

Head relatively small, widest across the eyes, sides rapidly converging anteriorly, epistomal apex truncate and angles obtuse; frons feebly convex, quite strongly so over the antennal insertions, frontal and oblique sutures fine and more or less obsolete, surface smooth, punctures very small. Antennae long and slender, extending slightly beyond the pronotal base, last three segments slightly broadened; second segment small and as long as wide, third elongate, slightly obconical and three times as long as wide, twice as long as sixth; fourth two-thirds as long as the third and about one-fourth longer than the fifth; fifth, sixth and seventh equal in length, eighth to the eleventh inclusive as long as wide, eighth subtriangular, ninth and tenth rather asymmetrical, eleventh short ovate. *Pronotum* subquadrate, widest before the middle, about one-fourth wider than long; apex quite truncate in circular arc, not beaded at middle, angles not in the least prominent, distinct and obtuse; sides rather moderately arcuate anteriorly, straighter and convergent posteriorly; base feebly arcuate, a third wider than the apex, angles obtuse, distinct and not in the least prominent; disk moderately strongly convex from side to side, lateral marginal area slightly deflexed as in the American *omissa*, Lec., feebly convex antero-posteriorly, obsoletely punctulate and glabrous. *Elytra* oval, about one-half longer than wide and pointed at apex, two and two-thirds times as long as the pronotum; base very feebly emarginate, humeri small and acute, not prominent; sides broadly arcuate, straighter and obliquely convergent in apical fourth to the narrowly rounded apex, widest at middle; disk moderately convex, becoming strongly and arcuately declivous and inflexed laterally, arcuately and somewhat gradually declivous apically, punctation dense and coarse, densest throughout the periphery, somewhat confluent and rather asperate along the lateral declivity, series not discernible. *Undersurface* obsoletely punctulate. Abdomen moderately convex, first segment as long as the second and third combined, second about as long as the fifth, third about twice as long as the fourth. Legs moderate in length and rather slender; metafemora attain the base of the fifth segment and subequal in length to the metatibiae. Tarsi elongate, metatarsi less than two-thirds as long as their tibiae; first segment of the metatarsi equal to the combined length of the second and third, the latter quite equal in length.

Measurements: (Type) Length, 18 mm.; width, 8 mm.

Type, ♀, and one paratype, ♀, in the collection of the British Museum. Mexico: Durango (*F. H. Wickham*). Presented by the Imperial Institute of Entomology, 1922.

E. omissoides, while having the same character of sculpturing and shining surface as *punctigera* described below, has a different-shaped pronotum resembling that in the *carbonaria* series of the subgenus *Melaneleodes*, Blais. *E. punctigera* appears to be a member of the *longicollis* group of the subgenus *Steneleodes*, Blais., as indicated by its form and shape of the pronotum. The similarity of the sculpturing of the two species is very remarkable.

Eleodes **punctigera,** sp. n.

Form subfusiform, narrowed anteriorly and less gradually so posteriorly, two and one-half times as long as wide, widest at middle of the elytra. Colour deep black, lustre shining, pronotum obsoletely punctulate and smooth, elytra coarsely and densely punctate as in

omissoides described above and apparently belonging to the *longicollis* group of the subgenus *Steneleodes*, Blais.

Head transverse before the post-ocular line, sides rapidly convergent anteriorly, epistomal apex truncate, angles obtuse; frons moderately convex, slightly impressed on the oblique sutures, otherwise sutures quite obsolete, supra-antennal convexities prominent superiorly and declivous to the eyes: surface smooth, punctures extremely fine and rather sparse. Antennæ long and slender, extending a little beyond the pronotal base: segments three to seven inclusive cylindrical and elongate: second small and as long as wide; third twice as long as fourth, not quite four times as long as wide and four times as long as the second; fourth, fifth, sixth and seventh equal in length, equal in width and twice as long as wide; eighth triangulo-ovoidal, the latter to the tenth inclusive as long as wide and somewhat symmetrically ovoidal, eleventh asymmetrical, a little longer than wide and truncate at apex. *Pronotum* subquadrate, quite strongly convex from side to side, feebly so antero-posteriorly, beads fine, at base one-fifth wider than long: apex feebly emarginate between the distinct obtuse angles that are not in the least prominent anteriorly: sides parallel, feebly and broadly arcuate: disk smooth, extremely finely punctulate: base about one-sixth wider than the apex, feebly and broadly arcuate, angles small, obtuse and not in the least prominent. *Elytra* oval, a little less than one-half longer than wide, three and one-fourth times as long as the pronotum: base feebly emarginate, a marginal bead not evident, humeri very small, sharp but not prominent: sides broadly and moderately arcuate, somewhat rapidly converging in apical fourth, rather straighter before the narrowly rounded apex: disk moderately convex in the central area, becoming strongly and arcuately declivous laterally and considerably inflexed, densely punctate, punctures coarse, quite equal in size, irregular, series feebly and incompletely discernible when viewed longitudinally. *Undersurface* extremely finely and subobsoletely punctulate. Abdomen moderately strongly convex, first segment as long as the second and third together, third and fourth as long as the fourth and fifth combined. Legs long and slender, femora particularly so: metatarsi about one-half as long as their tibiæ, first segment as long as the fourth, second and third equal in length and together not quite as long as the first.

Measurements: (Type) Length, 25 mm.; width, 10 mm.

Type, ♀, in the collection of the British Museum. Mexico: Tepehuanes, Durango (*H. F. Wickham*). Presented by the Imperial Institute of Entomology, 1922.

E. punctipera appears quite distinct in its subfusiform body outline, shining surface, smooth and extremely finely punctulate pronotum and coarsely, densely punctate elytra. Its form and facies suggest relationship with the *longicollis* group of the subgenus *Steneleodes*, Blais. The outline of the pronotum is different from that of *omissoides* described above.

Eleodes compressitarsis, sp. n.

Form moderately ovate, noticeably depressed, about two and one-half times as long as wide, surface smooth, finely and rather obsoletely punctate, punctures simple. Colour nigro-piceous and the lustre dull. Profemora mutic in the sexes.

Head relatively small, twice as wide as long before the post-ocular line, slightly widest just before or across the eyes, sides rapidly convergent, straight or feebly and broadly sinuate to the epistomal apex, the latter truncate with angles obtusely rounded: frons smooth and feebly convex, frontal and oblique sutures fine and feeble, punctures very small, shallow, irregularly spaced, separated by a distance equal to two to five times their diameters, and several rather long setæ within the epistomal angles. Labrum transverse

with sides arcuate and the apex deeply and narrowly emarginate at middle, sinus rounded at bottom; punctures larger than on the frons, each with a rather long yellowish seta. Antennae long and slender, extending about three segments beyond the pronotal base; segments two to seven inclusive equal in width, four to seven equal in length, scarcely twice as long as wide; second segment short, subannular, as long as wide; third elongate, subcylindrical, twice as long as the fourth and four times as long as the second; eighth, ninth, tenth and eleventh a little wider than the preceding segments, eighth cylindrico-obconical, ninth and tenth as long as wide and irregularly orbicular; eleventh asymmetrical, short ovate and about as long as wide. *Pronotum* subquadrate, widest at or just before the middle, one-third wider than long, apex broadly and rather feebly emarginate, angles obtusely rounded and not in the least prominent; sides broadly and moderately arcuate, less so behind the middle, lateral bead fine and slightly reflexed; base broadly and feebly arcuate to subtruncate, one-fourth wider than the apex, angles small and obtuse, distinct and not in the least prominent; disk evenly and less than moderately convex, smooth, finely and obsoletely punctate. *Elytra* oblong-ovate, widest behind the middle, three-fifths longer than wide and three times as long as the pronotum; base transverse, humeri obtusely rounded; sides broadly arcuate, rather more strongly so in apical third to the somewhat narrowly rounded apex; disk somewhat depressed and less than moderately convex, strongly, arcuately and rapidly declivous and inflexed laterally, apical declivity oblique and arcuate; surface smooth, obsoletely and finely creased, punctures small and indistinct. *Undersurface* sparsely and obsoletely punctate, punctures moderate in size. Abdomen on the same plane as the sterna, differing in convexity in the sexes; first ventral segment on the median line as long as the third and fourth together, second twice as long as the fourth and about as long as the fifth, third two-fifths longer than the fourth. Legs slender, moderate in length; profemora mutic in the sexes, metatibiae and metafemora subequal in length, metatarsi about three-fifths as long as their tibiae. Tarsi elongate and slender, segments more or less compressed in basal two-thirds, the metatarsal segments noticeably so; second and third segments equal in length, first and fourth subequal, each less than twice as long as the second. Margins of the plantar grooves with rather coarse yellow hairs which increase in length from base to apex, where they form rather long pointed tufts, which are divided and not obstructing the plantar grooves at apex.

♂. Narrower, abdomen feebly convex and impressed along middle third of first three segments. Tarsi more slender.

♀. Rather more robust, elytra broader and slightly inflated. Abdomen less than moderately convex and not impressed. Tarsi somewhat stouter.

Measurements: (types) length, ♂ 18, ♀ 18 mm.; width, ♂ 7, ♀ 9 mm.

Holotype, ♀, and allotype, ♂, in the collection of the British Museum, Mexico: Nevada de Colima, 6–9000 ft., September, 1904. Each type bears the label: *Ex* Cambridge Univ. Mus.; Brit. Mus., 1921—394. The female was collected by *H. Gadow*.

E. compressitarsis evidently belongs to the subgenus *Blapylis*, Horn, and is closely related to *tibialis*, Blais., of Baja California. These two species constitute a distinct group in the subgenus *Blapylis*. *E. tibialis* has the lateral pronotal bead distinct and entire, *i.e.* attaining the basal angles; the first segment of the protarsi is clothed with a tuft of yellow pubescence beneath which blocks the plantar groove. It differs from the other species of the subgenus in its elongate and depressed subnyctobatoid form and smooth body surface.

In *compressitarsis* the pronotal characters, depressed form and smooth surface agree with *tibialis*: the first and second segments of the protarsi have yellow tufts beneath. In the subgenera *Promus*, Lec., and *Blapylis*, Horn, the genital characters are different and definitive.

Embaphion **mexicanum**, sp. n.

Form oblong-oval, caudate in the male and much narrower than in *contusum*, Lec. Colour piceous with a slight tinge of rufous. About one and two-thirds times longer than wide.

Head relatively small as usual, less than one-half wider than long before the post-ocular line; frons flat, supra-antennal convexities moderately convex, surface with few widely scattered punctures; sides very slightly widest before the eyes, the latter not in the least prominent. Frontal sutures obsolete. Antennae slender, extending very slightly beyond the pronotal base, last three segments slightly incrassate; segments three to seven inclusive elongate, third to the sixth inclusive cylindrical, seventh subobconical; second segment short and triangulo-conical, one-third as long as the third, the latter one-half longer than the fourth, the latter about one-fourth longer than the fifth; segments five, six and seven equal in length and a little more than twice as long as wide, eighth triangulo-oval and about as long as wide. *Pronotum* deeply and arcuately emarginate at apex as in *contusum*, subequal in width to the elytra; foliaceous margins moderately wide and reflexed as in *contusum*, margins broadly and moderately strongly arcuate, not more convergent towards base than anteriorly, angles and base as in *contusum*; disk slightly convex antero-posteriorly, very sparsely punctate, punctures small and feebly submuricate. *Elytra* caudate at apex in the male as in *contusum*, slightly more than one-half longer than wide exclusive of the cauda; sides but feebly foliaceous and slightly reflexed, margins broadly and less than moderately arcuate, more rapidly convergent in apical one-half; base transverse, humeri obtusely rounded; disk feebly concave transversely, very gradually and arcuately declivous in about apical one-fourth to the subacute apex, the cauda not emarginate at the suture and slightly angulate at base laterally; surface feebly scabrous, somewhat transversely and inconspicuously rugulose, punctures on minute points. Declivous sides sparsely punctate, punctures somewhat dimpled. Epipleurae as in *contusum* and other members of the genus. *Abdomen* sparsely and subobsoletely punctured. Legs slender and moderate in length. External and internal margins of the protibiae parallel, briefly and suddenly constricted within at base. Described from the male.

♀. Not caudate. Elytra more rapidly and arcuately declivous in about apical third. Protibiae slender, widening slightly and gradually to apex, not constricted at base, otherwise as in the male.

Measurements: ♂.—Length, 16 mm.; width, 6 mm. ♀.—Length, 15 mm.; width, 6 mm.

Holotype, ♂, and allotype, ♀, both in the collection of the British Museum. Mexico: Colonia Diaz., Chihuahua.

E. mexicanum can only be confused with *contusum* as these are the only known caudate species; *contusum* is a larger and much broader species, *mexicanum* is more parallel and oblong in form, the second antennal segment is longer and more subconical. In *contusum* the second segment is smaller and triangular as well as about one-fifth as long as the third.

DIE GATTUNG *ASIDOBLAPS*, FAIRM. (COL., TENEBR.)

Von Adrian Schuster.

(*Wien.*)

Die Gattung *Asidoblaps* wurde von Fairmaire in 1886 *Ann. Soc. ent. Fr.* (VI), **6** : 342 aufgestellt und umfasste nur zwei Arten aus Yunnan, Südwest-China, *davidis*, Fairm. und *glyptoptera*, Fairm.

Ich erhielt nun von Herrn Emmerich Reitter, Troppau, zwei weitere *Asidoblaps*-Arten aus der Provinz Szetschwan und dies veranlasst mich eine Bestimmungstabelle der Gattung zu geben, der ich die Beschreibung der Arten anschliesse.

Dank dem besonderen Entgegenkommen des Herrn Direktors Prof. Dr. R. Jeannel des Muséum National d'Histoire Naturelle, Paris, konnte ich die Fairmaire'schen Typen von *Asidoblaps davidis* und *glyptoptera* studieren, wofür ich Herrn Dr. Jeannel auch hier meinen verbindlichsten Dank sage.

Die Gattung *Asidoblaps* ist durch folgende Merkmale charakterisiert :

Kopf hinter den Augen verschmälert, Kopfschild vorne breit ausgerandet, Oberlippe breit sichtbar. Das Kinn füllt den Kehlausschnitt nicht ganz aus. Kehlausschnitt mit deutlichem Kinnfortsatz. Maxillen unbedeckt. Letztes Glied der Maxillartaster beilförmig. *Halsschild* an die Flügeldecken schliessend, mit mehr oder minder ausgerandetem Vorderrand, Seitenrand nicht herabgebogen. *Schildchen* ganz bedeckt. Gelenkgruben der *Mittelhüften* seitlich geschlitzt mit Trochantinen. *Hinterhüften* durch einen ziemlich breiten vorne abgestutzten Fortsatz des ersten Sternits von einander getrennt. *Tarsen* auf der Unterseite stachlig. Vordertarsen beim ♂, mit Ausnahme des ersten Gliedes, nicht erweitert.

Diese Charaktere verweisen die Gattung zu den Blaptini.

Von den übrigen Gattungen dieser Unterfamilie unterscheidet sie sich durch folgendes :

Vorder- und Mittelschienen zur Spitze mässig verbreitert. Vorderschienen bei ♂ und ♀ mit zwei deutlichen Enddornen. Vorderschenkel mit einem Zahn vor der Spitze. ♂ ohne Bürstenfleck auf dem Abdomen. Vordertarsen des ♂ unten mit Bürsten besetzt, das erste Glied schwach erweitert. Halsschild mit verflachten, breit abgesetzten Seitenrändern. Flügeldecken an den Seiten die Epipleuren kantig überwölbend.

Die bisher bekannt gewordenen Arten bewohnen ausschliesslich China.

Bestimmungstabelle.

1(4). Die oben abgeflachten Flügeldecken mit unregelmässig verteilten grossen flachen Pusteln.

2(3). Gross, 13–13·5 mm., dunkelbraun, schwach glänzend, Halsschildseiten stark aufgebogen, neben dem Seitenrand mit tiefer Längsfurche. Flügeldecken ganz abgeflacht, mit zwei flachen, breiten Dorsalrippen, wovon die äussere etwas stärker ist. Auf den Dorsalrippen weit von einander entfernte grosse, flache Pusteln; auf den Zwischenräumen unregelmässige Reihen weit von einander entfernter, ähnlicher Pusteln; sonst unregelmässig verworren runzelig, an den Seiten, hie und da, eingestreute Punkte . . . . . *davidis*, Fairm.

3(2). Klein, 10 mm., schwarzbraun, matt. Halsschildseiten breit verflacht, schwach aufgebogen, neben dem Seitenrand ohne Längsfurche. Flügeldecken abgeflacht sehr schwach der Quere nach gewölbt, ohne Dorsalrippen, nur mit ganz unregelmässig verteilten Pusteln, gegen die Basis mit ziemlich flachen, grubigen Punkten, an der Naht mit

kleineren Punkten: der rückwärtige Teil der Scheibe, zwischen den Pusteln, rauh, ohne Punkte; der Flügeldeckenabsturz rauh, ohne Pusteln . . . . . *glyptoptera*, Fairm.

4/1. Flügeldecken der Quere nach gewölbt, glatt, nur bei Vergrösserung punktiert erscheinend, ohne Pusteln.

5/6. Oberseite fast matt. Flügeldecken fein, erloschen punktiert. *subopaca*, sp. n.

6/5. Oberseite sehr stark glänzend. Flügeldecken mit ziemlich groben, hie und da reihig gestellten Punkten . . . . . *polita*, sp. n.

Asidoblaps subopaca, sp. n.

Schwarz, fast matt, schwach seidenglänzend, in Grösse und Gestalt einer *Platyscelis meloe*, Fisch., ziemlich ähnlich. *Kopf* kleiner als der Halsschild an der Spitze; fein, zerstreut punktiert; Kopfschild vorne breit, flach ausgerandet. Augen quer, nierenförmig, nicht vortretend. *Fühler* rotbraun, die Basis des Halsschildes überragend, die ersten sieben Glieder fast zylindrisch, zur Spitze schwach erweitert, das dritte Glied etwa so lang wie das vierte und fünfte zusammen, das vierte, fünfte und sechste ziemlich gleich lang, das siebente etwas kürzer, das achte bis zehnte trapezoidal, das Endglied zugespitzt; die letzten vier gelb behaart. *Halsschild* an der Basis fast so breit wie die Basis der Flügeldecken, breiter als lang, schwach gewölbt, mit abgesetzten Seiten; Vorderrand und Basis ungerandet, ersterer schwach, letztere sehr schwach ausgerandet fast gerade; die Seiten vorne gerundet, von der Mitte zur Basis beim ♂ fast gerade, beim ♀ schwach gerundet; zur Spitze ziemlich stark verengt; mit schwach wulstig gehobenem Rand, neben diesem mit tiefer Längsfurche; Vorderwinkel stumpf verrundet, Hinterwinkel beim ♂ fast rechtwinkelig beim ♀ stumpfwinkelig; fein, dicht punktiert. Pleuren mit erloschenen Längsrieken. Prosternum grob punktiert. Prosternalfortsatz mit mehr oder minder tiefer Mittelfurche, hinter den Vorderhüften steil abfallend, mit kleinem Endzahn. Flügeldecken beim ♂ bis zum zweiten Drittel sehr schwach erweitert, schwach gewölbt, beim ♀ bauchig erweitert, stärker gewölbt; bei ♂ und ♀ an den Seiten stumpfkantig; fein, erloschen punktiert; beim ♀ auf der Scheibe Spuren zweier Längsrippen. *Abdomen* glänzend, fein, zerstreut punktiert. Beine dunkelrotbraun, Vordertarsen des ♂ mit schwach erweitertem ersten Glied, unten stark, lang bebürstet; Vorderschienen bei beiden Geschlechtern mit zwei Enddornen; Vorderschenkel bei ♂ und ♀ mit starkem Zahn vor der Spitze; alle Schenkel vereinzelt grob punktiert; Vorder- und Mittelschienen zur Spitze mässig verbreitert.

Long. 13½–15 mm.

China: Szetschwan, Wassuland, Chunghwa.

Von Herrn Emmerich Reitter erhalten.

Von *Asidoblaps polita*, m. sofort durch die matte Oberseite, die bedeutendere Grösse, den zur Basis weniger verengten Halsschild, die bei ♂ und ♀ fein, erloschen punktierten, beim ♂ fast parallelen Seiten der Flügeldecken; von den zwei Fairmaire'schen Arten durch das Fehlen der Pusteln auf den Flügeldecken zu unterscheiden.

Asidoblaps polita, sp. n.

Tiefschwarz, stark glänzend, die Oberseite, ohne Vergrösserung, glatt erscheinend, im Habitus einer *Itagonia* etwas ähnlich; ♂ lang eiförmig, mit niedergedrückten Flügeldecken; ♀ breit eiförmig, mit stark bauchigen, gewölbten Flügeldecken. *Kopf* etwas kleiner als der Halsschild an der Spitze erloschen zerstreut, sehr fein punktiert; der Kopfschild vorne breit, flach ausgerandet. Augen etwas schräg gestellt, nicht vorspringend. *Fühler* die Basis des Halsschildes mit den zwei letzten Gliedern überragend, die ersten sieben Glieder zylindrisch, rotbraun, die vier letzten stark gelb behaart; das dritte Glied sehr lang, länger als das vierte und fünfte zusammen; das vierte bis siebente gleich lang, das achte bis zehnte trapezoidal, das Endglied zugespitzt. *Halsschild* an der Basis etwas schmaler

als die Flügeldecken an der Basis, in seiner grössten Breite fast nur halb so breit wie die Flügeldecken in ihrer grössten Breite, schwach herzförmig; etwas breiter als lang, schwach der Quere und der Länge nach gewölbt, mit abgesetzten Seiten, Vorderrand und Basis ungerandet, Vorderrand schwach ausgerandet, Basis gerade; die Seiten gerundet, zur Basis sehr schwach, zur Spitze stärker verengt, mit schwach wulstig gehobenem Rand, neben dem Rande mit einem, im ersten Drittel beginnenden, in der Mitte ziemlich tiefen Längseindruck: Vorderwinkel stumpfwinkelig, Hinterwinkel fast rechtwinkelig; fein, nicht sehr dicht punktiert. Pleuren mit erloschenen, gegen den Rand stärkeren Längsriefen. Prosternum ziemlich grob punktiert; Prosternalfortsatz in der Mitte gefurcht, steil abfallend, mit kleinem Endzahn. *Flügeldecken* beim ♂ schwach, beim ♀ stärker, der Quere nach gewölbt: an den Seiten stumpfkantig, beim ♂ schwach, beim ♀ stärker, bauchig erweitert; mit ziemlich groben, hie und da kurze Reihen bildenden Punkten. *Abdomen* stark glänzend, glatt, oder zerstreut fein punktiert. *Beine* rotbraun, Vordertarsen des ♂ mit schwach erweitertem ersten Glied, unten auffallend stark, lang bebürstet; Vorderschienen bei ♂ und ♀ mit zwei Enddornen; Vorderschenkel bei beiden Geschlechtern mit einem Zahn vor der Spitze; Vorder- und Mittelschienen zur Spitze mässig verbreitert.

Long. 11½–12 mm.

China: Szetschwan, Wassuland, Chunghwa.

Von Herrn Emmerich Reitter erhalten.

Ich erlaube mir, Herrn Reitter auch hier für die Überlassung von Belegstücken der beiden neuen Arten meinen besten Dank zu sagen.

Ich gebe, der Vollständigkeit wegen, noch die Beschreibungen der beiden Arten Fairmaire's, entworfen nach den Typen.

Asidoblaps davidis, Fairm.*

Dunkelbraun, schwach glänzend, Kahl. ♂ lang eiförmig, mit abgeflachten, ♀ mit flach gewölbten, bauchig erweiterten Flügeldecken. *Kopf* etwas kleiner als der Halsschild an der Spitze, fein, erloschen, zerstreut punktiert. Kopfschild vorne flach ausgerandet. Fühler die Basis des Halsschildes beträchtlich überragend, Bildung wie bei *A. subopaca*. *Halsschild* in der grössten Breite so breit wie zwei Drittel der Flügeldecken, schwach gewölbt, breiter als lang, schwach herzformig; hinter der Mitte am breitesten, an den Seiten gerundet, zur Spitze mehr verengt als zur Basis, die Seiten vor der Basis schwach ausgeschweift; der Seitenrand breit aufgebogen, wulstig gerandet, neben dem Randwulst mit tiefer Furche, vor der Basis mit schwacher, an den Seiten etwas vertieften Querfurche; mit vertiefter Mittellinie, zerstreut, ungleich, fein und gröber gemischt, gegen die Basis und an den Seiten gröber punktiert; Vorderwinkel stumpfwinkelig verrandet, Hinterwinkel fast rechtwinkelig. Pleuren mit feinen, teilweise erloschenen, gegen die Vorderhüften etwas starkeren Längsriefen. Prosternalfortsatz steil abfallend, mit kleinem Endhöcker. *Flügeldecken* mit stumpfer, die Epipleuren überwölbenden Randkante; auf der Scheibe mit zwei flachen, breiten Dorsalrippen, wovon die äussere etwas stärker ist; auf den Dorsalrippen weit von einander entfernte grosse, flache Pusteln, auf den Zwischenräumen unregelmässige Reihen weit von einander entfernter ähnlicher Pusteln, sonst unregelmässig verworren runzelig; beim ♀ an den Seiten, hie und da, eingestreute Punkte, beim ♂ die ganze Scheibe mit solchen Punkten. *Abdomen* stark glänzend, glatt; beim ♂ das Analsternit zerstreut punktiert beim ♀ mit sehr undeutlichen, schwachen Längsrunzeln. *Beine* und *Tarsen* wie in der Gattungscharakteristik angegeben.

Long. 13–13·5 mm.

China: Yunnan (coll. Fairmaire).

Es lagen mir ♂♀, Kotypen des Pariser Museums vor.

* 1886, *Ann. Soc. ent. Fr.* (VI), **6**: 342.

Asidoblaps glyptoptera, Fairm.*

Schwarzbraun, matt, Kahl, lang eiförmig. Kopf halb so gross wie der Halsschild in der Mitte, fein, zerstreut punktiert. Kopfschild vorne flach ausgerandet. *Fühler* die Basis des Halsschildes überragend, das dritte Glied länger als das vierte und fünfte zusammen, das vierte bis siebente gleichlang zylindrisch, zur Spitze schwach erweitert, das achte und neunte trapezoidal, die zwei Endglieder fehlen; die ersten sieben Glieder dunkelbraun, das achte und neunte gelb behaart. *Halsschild*, quer, etwas breiter als eine Flügeldecke; die Scheibe der Lunge und Breite nach gewölbt, die Seiten breit verflacht, der wulstige Rand schwach aufgebogen, neben dem Seitenrand ohne Längsfurche; hinter der Mitte am breitesten, die Seiten gerundet, zur Spitze mehr verengt als zur Basis, die Seiten vor der Basis kaum ausgeschweift, mit Querfurche vor der Basis, ohne Mittellinie, die Mitte der Scheibe erloschen, sehr fein, an den Seiten und an der Basis ziemlich grob punktiert; Vorderwinkel stumpfwinkelig, Hinterwinkel fast rechtwinkelig. Pleuren mit erloschenen Längsriefen, gegen die Vorderhüften und den Rand glatt. Prosternalfortsatz zapfenförmig verlängert, hinter den Vorderhüften sanft abfallend. *Flügeldecken* abgeflacht, sehr schwach der Quere nach gewölbt, die Epipleuren kantig überwolbend, mit unregelmässig verteilten grossen, wenig erhobenen Pusteln, die stellenweise zusammenhängen, aber keine ausgesprochenen Rippen bilden, gegen die Basis mit ziemlich flachen, grubigen Punkten, an der Naht und zum Teile auf der Scheibe mit kleineren Punkten; der rückwärtige Teil der Scheibe zwischen den Pusteln und der Flügeldeckenabsturz rauh, ohne Punkte, letzterer ohne Pusteln. *Abdomen* glänzend, zerstreut, fein, das Analsternit etwas gröber punktiert. *Beine* und *Tarsen* wie in der Gattungscharakteristik angegeben.

Long. 10 mm.

China: Yunnan (coll. Fairmaire).

Es liegt mir die Type, ♂, des Pariser Museums vor.

Von *A. davidis*, Fairm. durch die geringere Grösse, die dunkle Färbung, den anders gebildeten Halsschild und die Skulptur der Flügeldecken verschieden.

Die von mir in 1923, *Wien. ent. Ztg.* **40**: 161 beschriebene *Asidoblaps szetschwana* ist, wie ich jetzt feststellen konnte, keine *Asidoblaps*, sondern eine *Itagonia*. Ich hatte seiner Zeit die Gattung *Asidoblaps* nicht gekannt und mich durch den Umstand irre führen lassen, dass das ♀ von *Itagonia* nur einen sehr grossen Enddorn der Vorderschienen haben soll, während die von mir beschriebene Art beim ♀ ausser dem grossen Enddorn noch einem zweiten, sehr kleinen Enddorn aufweist. Sowohl Reitter in *Hor. Soc. ent. Ross.* **1889**: 692, als auch Seidlitz *in* Erichson, *Ins. Deuts.* **5**: 237 sagen ausdrücklich. "Vorderschienen des ♀ nur mit einem grossen Enddorn." Ich habe nun beim ♀ von *I. gnaptorinoides*, Rtt., gefunden, dass ausser dem grossen, fingerförmigen Enddorn der Vorderschienen auch ein, allerdings schwer sichtbarer, kleiner, spitziger Enddorn vorhanden ist, so wie bei der *szetschwana*, m. Unter 5 ♀♀ von *I. ganglbaueri*, mihi, fand ich nur bei einern Stück, u. zw. am rechten Vorderfuss, diesen kleinen zweiten Enddorn; bei 2 ♀♀ von *I. semenowi*, Rtt., hingegen keinen. Es ist möglich, dass dieser zweite kleine Enddorn beim Graben abbricht und dass Reitter bei seiner Beschreibung der Gattung *Itagonia* ein ♀ vorlag, bei dem dieser zweite Enddorn fehlte. Auch Freund Hans Gebien, Hamburg, hat mir bestätigt, dass sein ♀ von *I. gnaptorinoides* zwei Enddorne der Vorderschienen hat.

Die Gattung *Itagonia*, Rtt. gehört also nicht in die Gruppe: *Targona*, Gisch., *Gnaptor*, Br., und *Gnaptorina*, Rtt. (*Tagonoides*, Fairm.), sondern zu *Asidoblaps*, Fairm., *Coelocnemodes*, Bat. und *Dila*, Fisch.

Man müsste aber, in einer etwa neu abzufassenden Gattungstabelle auf den

* 1886, *Ann. Soc. ent. Fr.* (VI), **6**: 343.

Umstand Rücksicht nehmen, dass beim ♀ von *Itagonia* haufig der zweite Enddorn der Vorderschienen fehlt.

Meine *Itagonia* (nicht *Asidoblaps*) *szetschwana* unterscheidet sich übrigens von *gnaptorinoides* Rtt., durch die breit abgesetzten Seiten des Halsschildes; von *semenowi*, Rtt., durch die viel spärlichere Punktierung des Halsschildes und der Flügeldecken und *ganglbaueri*, m. hat eine viel gröbere, doppelt so starke Punktierung der Oberseite.

SOME NEW ACRIDIODEA (ORTH.) FROM THE SOLOMON ISLANDS

By C. Willemse.

Thanks to the kindness of my friend, Mr. B. P. Uvarov, I have had the opportunity of studying a small collection of Acridiodea from the Solomon Isl., sent by Messrs. R. A. Lever and H. T. Pagden. Up to the present very little had been known of the Orthoptera of these Islands, and the collection should be welcomed as a valuable contribution to the knowledge of the Orthoptera of the Pacific region.

The types of the new species are in the British Museum (Natural History).

Bumacris, Will.

When describing the genus *Bumacris* with its genotype *B. flavomaculata*,* an error was made that needs rectification, viz. the outer apical spine of hind tibia is distinct and not absent as indicated in the description.

I prefer to give a redescription of the genus, since the material before me also contains female specimens, hitherto unknown.

Size medium, body robust, coarsely or more finely punctured. *Antennae* filiform, composed of elongated joints, reaching a little beyond the posterior margin of pronotum. *Face* reclinate, frontal ridge in profile straight, not projected between the antennae, percurrent towards the clypeus, sulcate throughout, margins parallel. Lateral facial keels practically straight, distinct. Eyes globose, prominent sideways and slightly upwards; interocular distance about as broad as the frontal ridge or somewhat broader. Fastigium of vertex slightly sloping, forming a rounded angle with the frontal ridge, apex rounded, margins obtuse, with an impression or sulcus between the eyes; vertex convex with rows of impressed points on each side. *Pronotum* rounded, rugosely punctured, slightly widened posteriorly or cylindrical; anterior margin rounded, posterior margin rounded triangular; median keel only perceptible in the metazona, in the anterior part absent or indistinct; submarginal sulcus only distinct on the lobes; first sulcus only distinct on the disc, on both sides terminating in a little transverse impression or small sulcus; second and third sulcus distinct, both on the disc and on the lobes; third sulcus behind the middle; lateral lobes somewhat longer than high, lower margin ascendant from its middle to the anterior margin, anterior angle broadly rounded, posterior angle nearly rectangular, posterior margin practically straight or slightly concave.

Prosternal spine straight, cylindrical, rather slender, apex obtusely pointed. Mesosternal lobes as long as broad, inner margin rounded; their interspace somewhat smaller than the lobes, widened posteriorly. Metasternal lobes separated by a distinct but small interspace. *Elytra* and wings reaching the tip of abdomen or somewhat shorter. Hind *femora* relatively stout or slightly flattened, with all keels smooth, upper keel terminating in a sharp point, knee-lobes sharply pointed. Hind tibiae slightly curved and slightly

* 1931, *Int. ent. Z.*, **25** : 349.

expanded apically, with 10 inner and 8 outer spines, with distinct outer apical spine. Hind tarsi short, only reaching the middle of hind tibia, second joint about half as long as the first one, third joint about as long as, or somewhat shorter than, the two others together.

♂. Supra-anal plate triangular, apex obtuse, at the base with a small median round impression. Cerci slender, conical, almost straight, apex obtusely pointed, reaching a little beyond the supra-anal plate. Subgenital plate short, apex obtusely truncate.

♀. Supra-anal plate triangular, apex rounded, with a basal median sulcus. Cerci short, conical, apex obtusely pointed, not surpassing the supra-anal plate. Valves of ovipositor long, upper valves somewhat longer and about twice as broad as the lower ones, apex obliquely truncate and crenulate; lower valves with the lower margin crenulate, apex obtuse. Subgenital plate about as long as broad, posterior margin rounded triangular.

Bumacris flavomaculata, Will.

I have before me a female of this species, previously unknown.

♀. Elytra and wings somewhat shorter than the abdomen. Elytra with a basal dilatation at the anterior margin, margins slightly convergent towards the apex, apex rounded-truncate.

The coloration as in the male. Hind tibia black, with a broad yellow-orange ring at the base. Supra-anal plate triangular, apex rounded, with a shallow basal median sulcus. Cerci short, straight, conical, apex obtusely pointed, not surpassing the supra-anal plate. Valves of ovipositor long, upper valves somewhat longer and about twice as broad as the lower ones, practically straight, apex obliquely truncate and crenulate; lower valves slightly curved upwards, with the lower margin crenulate, apex obtuse. Subgenital plate about as long as broad, posterior margin rounded triangular.

Length of body, 29 mm.; of pronotum, 8 mm.; of elytra, 20 mm.; of hind femora, 19 mm.

Locality. Solomon Isl.: Nggela Isl., Halaita, 20.iii.1934, low herbage (*H. T. Pagden*).

Bumacris **monotona**, sp. n.

♀. General coloration black and yellowish-green. Antennae bluish-black, darker apically, basal joints yellowish, top of apical joint yellowish-white.

Head yellow, face yellow, with a small black spot on each side of the frontal ridge near the median ocellus and a small black spot near the lower anterior angle of the eye; upper part of the face more greenish-yellow. Vertex black, with a small dirty-yellowish spot at the inner margin of the eye; fastigium of vertex more greenish. Clypeal margin of face and lower margin of cheeks black; mouth-parts greenish-yellow; labrum and mandibles more bluish-yellow or yellowish-black. *Pronotum* dirty yellowish-green, disc with a broad median olivaceous green band, running from the anterior to the posterior margin; lateral lobes with a brown spot in the middle, near the anterior angle with a small, and near the posterior angle with a larger, yellowish-white spot. *Elytra* and wings short, reaching the middle of hind femora. Elytra light greenish-yellow; anterior margin expanded basally, apex rounded. Wings hyalinous. *Sternum* black. Abdomen brown with black spots on each side, sternites brownish-black, posterior margin bordered with brown.

Anterior and median *legs* olivaceous-green or brown, with longitudinal black lines or rows of black spots. Hind femora black, with a pregenicular yellow ring, knee black. Hind tibia dark olivaceous-green, somewhat lighter coloured at the base; spines with black tips. Hind tarsi olivaceous-green. Subgenital plate as in *flavo-maculata*. ♂, unknown.

Length of body, ♀ 29 mm.; of pronotum, 7 mm.; of elytra, 15 mm.; of hind femora, 20 mm.

Locality. Solomon Isl.: Guadalcanal Isl., Tslouia, 6.ii.34, 1 ♀ (*H. T. Pagden*).

Bumacris **pagdeni,** sp. n.

General coloration yellowish-orange with black. *Antennae* blackish-brown or olivaceous green. *Head* yellowish-orange; face yellowish-orange, upper part between the eyes black, with a yellowish-orange spot near the basal joint of antennae, frontal ridge black with the margins yellowish-orange, lateral facial keel near the clypeal margin with a small black spot; cheeks with a small oblique black stripe near the anterior margin of pronotum; fastigium of vertex black, vertex with a median black band, widened posteriorly, beginning at the fastigium and running to the anterior margin of pronotum. Mouth-parts blackish-brown, a spot on the mandibula and the palpi yellowish-orange or brownish. Interocular distance relatively narrow, as broad as the frontal ridge. *Pronotum* yellowish-orange, disc with a broad median band black, sulci and part of the punctuation on the lobes black. Epimerum of prothorax black, epimerum and episternum of meso- and meta-thorax yellowish-orange. *Elytra* bluish-green, reaching the top of abdomen, anterior margin expanded basally, tip of elytra rounded truncate. Wings hyalinous with a faint bluish-green tinge. Anterior and median *legs* yellowish-orange, tips of femora, apex and base of tibiae black; tarsi blackish. Hind femora yellowish-orange, knee black. Hind tibiae bluish, with a yellowish or greenish-yellow, indistinctly limited ring at the base; spines with black tips. Hind tarsi greenish-brown. Sternum and abdomen black, sides of abdomen with brownish or yellowish-brown spots. Subgenital-plate of female with posterior margin rounded.

Length of body, 24 mm. ♂, 29 mm. ♀, of pronotum, 5 mm. ♂, 7 mm. ♀; of elytra, 17 mm. ♂, 20 mm. ♀; of hind femora, 15 mm. ♂, 18 mm. ♀.

Locality. Solomon Isl.: Vella Lavella, Liangi, 20.v.1934, 1 ♂ (type), 1 ♀, jungle (*H. T. Pagden*).

Cranaë **signata,** sp. n. (fig. 1).

♀. General coloration shining black, with red and yellow. *Antennae* black, the first joint yellow. *Head* shining black, with yellowish-red pattern and spots; face yellowish-red with irregular black spots, frontal ridge and the lateral facial keels, between the clypeal sutures, yellowish-red, black in the middle. Clypeus and labrum yellowish-red with irregular black spots, mandibulae black, the base yellowish-red; cheeks yellowish-red with irregular black spots, one below the eye, a larger one behind the eye and a third one near the anterior margin of lateral lobe of pronotum. Fastigium of vertex yellowish-red, vertex shining black with two narrow longitudinal rows of reddish spots on each side scarcely perceptible. *Pronotum* red; submarginal sulcus on the disc red, on the lobes black, first, second and third sulcus black, first sulcus only distinct on the disc and terminating on each side in a small black spot; mesonotum with a round black spot and an oblique blackish impression near the middle on each side, metanotum reddish-black; disc of pronotum in the middle, in the place of the median keel which is absent, with a fine black stripe; lateral lobes black, anterior margin red, upper part of prozona and of mesozona red, posterior angle of lower margin with an indistinct reddish spot. *Elytra* very small, scale-like, lateral, reaching only a little beyond the posterior margin of mesonotum; red. Wings rudimentary, scarcely perceptible. Epimerum of *prothorax* in the anterior half red, posterior half black. *Sternum* and abdomen shining black; tip of prosternal spine yellowish-red, with small black tips.

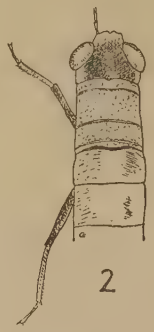
Supra-anal plate triangular, with a shallow impression, sides slightly incurved, apex more or less pointed; yellowish-red with an irregular black spot in the middle and with the apex black. *Ovipositor* straight, upper margin of upper valves slightly crenulate, lower valves subcrenulate; black. Subgenital plate longer than broad, with a deep median furrow from the base to the apex, which furrow is widened in the apical half; posterior margin truncate; black. Anterior and median *legs* shining black, anterior coxae with a

small yellowish-red spot. Hind femora shining black above, with a yellow spot at the apex just before the knee. Hind tibiae black, spines black with the tips yellowish-brown. Hind tarsi black. ♂, unknown.

Length of body, ♀, 25 mm.; of pronotum, 5 mm.; of elytra, 1 mm.; of hind femora, 15 mm.

Locality. Solomon Isl.: Malaita Isl., Suu, *Pandanus*, 16.viii.1934, 1 ♀ (*H. T. Pagden*).

1



2

Fig. 1.—*Cranaë signata*, sp. n., ♀; fig. 2.—*Modernacris simplex*, sp. n., ♀.

Modernacris **simplex**, sp. n. (fig. 2).

♀. General coloration olivaceous-green or yellowish-green. *Antennae* black, with the 1st, 4th, 6th, 8th, and 12th joint yellowish-red, composed of short, elongated joints; not reaching beyond the posterior margin of pronotum. *Face* light brown, anterior margin of the eye finely bordered with black; cheeks black, behind each eye greenish-olivaceous; vertex olivaceous-green with a broad black spot behind each eye, reaching the anterior margin of pronotum; fastigium of vertex brown. *Pronotum* olivaceous-green, transverse sulci brown, posterior margin of the metazona on the disc black. *Elytra* and wings absent. *Abdomen* olivaceous-green or yellowish-brown from above. Sternum and abdomen from below yellowish-brown or brown with darker spots, the two penultimate sternites with a large, quadrate bluish-black spot. *Subgenital plate* longer than broad, with a triangular impression at the base and a small median sulcus, posterior margin truncate with a long triangular projection in the middle with apex acute; brown with a longitudinal black spot in the middle. Anterior and median *legs* reddish-brown, tibiae and tarsi more olivaceous-green. Hind femora olivaceous-green, inner lower area with a dark stripe, knee-lobes somewhat reddish. Hind tibiae red, somewhat greenish at the base, spines with black tips. Hind tarsi reddish from above, greenish from below.

Length of body, ♀, 35 mm.; of pronotum, 5 mm.; of hind femora, 18 mm.

Locality. Solomon Isl.: Savo Isl., Reko jungle, 24.ii.1934 (*H. T. Pagden*), 1 ♀.

NOTES ON THE DRYOPOIDEA (COL.)

By H. E. Hinton, B.Sc., F.R.E.S.

(*Zoological Laboratory, Cambridge.*)

In the present paper, in addition to describing several new genera and species which have accumulated in the collections of the British Museum (Natural History), Imperial Institute of Entomology, and that of the author, several errors that have crept into the literature of this group are corrected. The material from the Imperial Institute of Entomology was kindly lent for study by Mr. G. E. Bryant. The writer wishes to express his deep appreciation to Dr. K. G. Blair for his many valuable suggestions during the preparation of this paper. Unless otherwise stated, the types of all new species are in the British Museum.

Psephenidae.

Mataeopsephenus **granulicollis,** sp. n.

♂. Broadly oval, moderately depressed; moderately densely clothed throughout with fine, short, mostly prostrate, testaceous hairs. Derm mostly rufo-piceous, shining; pronotum, scutellum and most of ventral surface greyish-brown, subopaque. *Head* anteriorly between eyes slightly more than a third wider than the greatest width of an eye; between eyes with a broad, triangular impression the apex of which is caudad and the base limited by the well-impressed clypeal suture; basal third of head more convex than apical portion and slightly coarsely but densely, rugosely punctate; depressed surface slightly coarsely punctate with the punctures separated mostly by less than their own diameters, surface elsewhere with the punctures slightly coarser and denser. Clypeus slightly more than three times as wide as long; lateral sides feebly reflexed upwards; anterior angles broadly rounded; apical margin nearly truncate; disk at middle feebly convex, more finely punctate than front, with the punctures separated by two to three times their own diameters; sides widely, transversely depressed and with the punctures coarser than on disk and separated mostly by less than their own diameters. Antennae extending slightly beyond base of prothorax, first segment two times as long as second, third slightly longer than first, fourth to eleventh successively shorter, tenth about half as long as third, acuminate at apex. Maxillary palpi with the first segment twice as long as second, third slightly longer than second, feebly acuminate at apex. *Prothorax* more than one-fourth wider than long, with base twice as wide as apex; anterior margin moderately bisinuate, anterior angles moderately prominent, obtusely rounded; sides arcuate but not uniformly so, not crenate, converging strongly towards apex; base very widely bisinuate, truncate in front of scutellum, basal angles prominent, strongly reflexed upwardly, obtusely rounded. Surface moderately strongly and transversely gibbous at middle of apex; near basal angles with a large depression on each side due chiefly to the reflexion of the basal angles; finely granulate except for a small, median area near base, granules anteriorly on disk separated by one to two times their own diameters, at sides and elsewhere separated by two to three times their own diameters and occasionally near hind angles more widely separated. *Elytra* not quite three times as long as prothorax; humeri feebly gibbous; inner margin of epipleurae slightly reflexed upwardly; alternate discal intervals feebly convex; striae absent; surface with fine and very fine punctures intermixed which are seldom (except on humeri) separated by more than one or two times their own diameters. Scutellum large, truncate at base and broadly rounded at apex. Beneath with the prosternal process narrow, very strongly convex, parallel between coxae, suddenly widened before apex, apex narrowly rounded. Fifth ventral abdominal segment very widely, deeply and

suddenly emarginate at apex; sixth broadly rounded at apex. Genitalia (male) with the median lobe spatuliform at apex, longer than parameres.

Length, 6 mm.; breadth, 4 mm.

Type: ♂, and *paratype*, ♂. Japan, 1896 (*Lord Dormer*).

Mataeopsephenus granulicollis, Hntn., may be separated from its only congener, *M. nitidipennis*, Waterh. (1876), by its granulate instead of punctate pronotum.

Dryopinae.

Elmomorphus, Sharp.

1888. *Elmomorphus*, Sharp, *Ann. Mag. nat. Hist.*, (6), **2** : 242.
1896. *Dryopidius*, Grouv. *Ann. Mus. civ. Stor. nat. Genova*, (2), **17** : 33.
1910. *Dryopidius*, Zaitzev, *Col. Cat.*, **17** : 11.
1910. *Elmomorphus*, Zaitzev, *Col. Cat.*, **17** : 19.

The genotype of *Elmomorphus*, Sharp, and several species of *Dryopidius*, Grouv., are before me. The two genera are synonymous. Grouvelle (*loc. cit.*) did not mention *Elmomorphus*, Sharp, in his original description of *Dryopidius*, and he was presumably not familiar with it.

Elmomorphus substriatus, sp. n.

Moderately widely obovate, convex; head except posterior frontal portion confluently clothed with minute, flat, oval, scale-like hairs; sides of sterna and all of ventral abdominal segments except middle of basal segment extremely densely and very finely tomentose; surface elsewhere (dorsally and ventrally) clothed with fine, moderately sparse and short, prostrate, testaceous hairs. Derm rufo-testaceous and shining throughout; antennae, mouth-parts and tarsi slightly paler; femora nearly rufo-piceous. *Head* feebly convex, nearly flat in front; finely punctate, with the punctures separated by three to four times their own diameters, each puncture with a fine, moderately short, prostrate hair. *Prothorax* two-fifths wider than long, base two-fifths wider than apex; anterior margin not sinuate, not produced at middle, anterior angles acute, prominently produced forwards; sides nearly straight, converging moderately strongly towards apex; base strongly trisinuate, basal angles moderately acute, slightly produced backwards. Surface rather evenly convex; punctures on disk and on middle area near base as fine as those of head and separated mostly by three to four times their own diameters; small area directly in front of scutellum with the punctures extremely fine and separated by more than five times their own diameters; punctures elsewhere slightly coarser than those of head and separated mostly by two to three times their own diameters. *Elytra* three times as long as prothorax, widest slightly behind middle; each elytron with nine extremely feebly impressed striae which are scarcely noticeable laterally; strial punctures moderately coarse laterally, becoming finer towards suture, those on sutural stria about a third as large and all separated by about five times their own diameters; intervals with the punctures slightly coarser than those of prothorax and separated mostly by two to three times their own diameters, sutural interval with the punctures slightly finer. Scutellum subovate, very slightly wider than long, broadly arcuate at base, feebly acuminate at apex. Beneath with the prosternal punctures as wide as those of head and separated mostly by more than five times their own diameters; prosternal process very feebly convex, one-fourth wider than long, widest near apex, lateral sides broadly but feebly elevated longitudinally. Mesosternum slightly more coarsely and densely punctate than prosternum, at sides feebly, longitudinally strigose; anterior margin very broadly, shallowly, arcuately not triangularly emarginate; marginal stria absent on middle three-fourths of front; meso-metasternal suture absent; meso-metasternum with a very finely impressed longitudinal line. Middle of basal ventral abdominal segment finely punctate, with the punctures separated by about five times their

own diameters; on each side of discal area with a sub-cariniform line extending from coxa to second ventral segment; apex of ventral segment with a very short, longitudinal callosity.

Length, 3 mm.; breadth, 1·4 mm.

Type: JAVA: Slabintanah, 2 April, 1909 (*G. E. Bryant*).

Elmomorphus substriatus, Hntn., is most nearly related to *E. truncatus*, Grouv., to which it traces in Grouvelle's key to the species (1896, *Ann. Mus. civ. Stor. nat. Genova*, (2) **17** : 35), but differs in the absence of the dense, scale-like hairs from the pronotum and elytra.

Elmomorphus **prosternalis,** sp. n.

Moderately narrowly obovate, convex; head for the most part, anterior lateral part of pronotum and elytra behind base on a lateral belt which gradually widens towards apex confluently clothed with minute, flat, oval, scale-like hairs; sides of sterna and all of ventral abdominal segments except middle of basal and basal, middle portion of second extremely densely and very finely tomentose; elsewhere (dorsally and ventrally) clothed with very fine, moderately sparse, recumbent, testaceous hairs. Derm rufo-piceous and shining throughout; antennae, mouth-parts and tarsi slightly paler. *Head* nearly flat in front; moderately finely punctate, punctures on disk separated by two to four times their own diameters; anteriorly and at sides equally as finely but more regularly punctate, with the punctures separated by two times their own diameters. *Prothorax* more than one-fourth wider than long, base more than one-fourth wider than apex; anterior margin not sinuate, not produced at middle, anterior angles acute, prominently produced forwards; sides very feebly bisinuate, converging moderately strongly towards apex; base strongly trisinuate, basal angles moderately acute, slightly produced backwards. Surface evenly convex; punctures never coarser than those of head; on disk and middle near base very finely punctate, with the punctures separated by five or more times their own diameters; elsewhere with the punctures slightly coarser and denser and separated mostly by two to three times their own diameters. *Elytra* three times as long as prothorax, widest at middle; not striate; surface with the punctures separated by two to three times their own diameters and slightly coarser than those of pronotum, punctures near suture finer and about as coarse as those on anterior lateral portion of pronotum. Scutellum in the form of an equilateral triangle with the angles rounded and the base broadly arcuate; surface extremely finely and sparsely punctate. Beneath with the prosternal punctures usually finer than those of head and separated mostly by more than five times their own diameters; prosternal process wider than long, widest at middle, strongly convex and on each side with a feeble, longitudinal stria. Mesosternum moderately strongly, very broadly, subtriangularly emarginate in front; marginal stria absent on middle one-half of front; meso-metasternal suture absent; surface with a very finely impressed, median, longitudinal line, finely punctate, with the punctures separated by four to five times their own diameters. Middle of first ventral abdominal segment finely, moderately sparsely punctate and towards lateral sides of disk with a few longitudinal, strigosely impressed lines; apex of apical segment with a short, median, longitudinal callosity.

Length, 3·4 mm.; breadth, 1·8 mm.

Type: SIAM PENINSULA: Khao Rom, Nakun Sritamarat, alt. 1750 ft., 2 March, 1922, " at light " (*H. M. Pendlebury*).

This species may be separated from all others by its very convex instead of flat prosternal process.

Elmomorphus **bryanti,** sp. n.

Narrowly obovate, convex; head except posterior frontal portion, anterior lateral portion of prothorax and elytra on a lateral belt gradually widening from base to apex

confluently clothed with minute, flat, oval, scale-like hairs; sides of sterna and all of ventral abdominal segments except middle of basal and second segments extremely densely and very finely tomentose; elsewhere (dorsally and ventrally) clothed with fine, moderately short, moderately sparse, prostrate, testaceous hairs. Derm rufo-piceous and shining throughout; mouth-parts and tarsi paler, antennae except two basal segments rufo-testaceous. *Head* nearly flat in front; moderately finely punctate, punctures on frontal, glabrous portion separated by two to three times their own diameters, elsewhere equally as dense. *Prothorax* two-fifths wider than long, base slightly more than one-fourth wider than apex; anterior margin not sinuate, not produced at middle, anterior angles acute, prominently produced forwards; sides nearly straight, converging moderately strongly towards apex; base strongly trisinuate, basal angles moderately acute, slightly produced backwards. Pronotal surface evenly convex; punctures at sides very slightly coarser than those of head, on disk and middle basal portion finer and separated by three to four times their own diameters, anteriorly and near sides separated by two to three times their own diameters. *Elytra* three times as long as prothorax, widest slightly behind middle; not striate; surface with the punctures but slightly coarser than those of pronotum and usually separated by two to three times their own diameters, punctures near suture slightly finer. Beneath with the prosternal punctures as coarse as those of elytra and separated mostly by four to five times their own diameters; prosternal process flat, slightly more than one-third wider than long, widest near apex, on each side with a long, nearly obsolete, obliquely longitudinal, strigose impression. Mesosternum scarcely more coarsely punctate than prosternum and with the punctures separated by two to four times their own diameters, near sides with a few longitudinal, strigose impressions; front very broadly, shallowly, arcuately not triangularly emarginate; meso-metasternal suture absent; meso-metasternum with a very finely impressed, longitudinal line. Middle of first ventral abdominal segment finely punctate, with the punctures separated by three to five times their own diameters; on each side of discal portion with a short, subcarinate line which extends from coxa to base of second ventral segment; apex of apical segment with a short, longitudinal callosity.

Length, 3 mm.; breadth, 1·3 mm.

Type: Malaya: Kuala Lumpur, "at light," 8 April, 1932 (*H. M. Pendlebury*).

Paratypes: Three with same data as above, but collected on different dates, as follows: one on 1 Aug., 1929; two in Feb., 1931.

Elmomorphus bryanti, Hntn., is apparently most closely related to *E. castaneus*, Grouv. (1896), but differs in being constantly about one-fourth smaller and in possessing an area near anterior angles of pronotum which is confluently clothed with scale-like hairs.

Protoparnus, Sharp.

1880. *Parnida*, Broun, *Man. N.Z. Col.*, **1** : 249.
1883. *Protoparnus*, Sharp, *Ent. Mon. Mag.*, **20** : 26.
1893. *Alloparnus*, Broun, *Man. N.Z. Col.*, **5–7** : 1107.
1910. *Protoparnus*, Zaitzev, *Col. Cat.*, **17** : 10.
1910. *Alloparnus*, Zaitzev, *Col. Cat.*, **17** : 10.

In 1883 Sharp (*loc. cit.*), in his description of the genus *Protoparnus*, said: "The insect, for which I propose this generic name, agrees with the generic characters given for *Parnida* by Broun . . . except in the structure of the antennae; but if Broun's description be at all correct, these organs must be very different in *Parnida* to what they are in *Protoparnus*."

The genotypes of both genera are before me; and the antennae are alike in

both. Sharp's genus, however, stands as the correct generic name for the group under discussion, as Broun's name, *Parnida*, is preoccupied (1841, Heer, *Fauna Helv.*, 466). Later, in 1893 Broun (*loc. cit.*) emended his name *Parnida* to *Alloparnus*, so that the latter became a homonym of *Protoparnus*.

Lutrochous, Er.

1847. *Lutrochous*, Er., *Naturg. Ins. Deutschl.*, **3** : 509.
1882. *Byrrhomorphus*, Sharp, *Biol. centr.-Amer. Col.*, **1** : 125.

The genotype of *Byrrhomorphus*, *B. vestitus*, Sharp, and several species of *Lutrochous* are before me. *Byrrhomorphus*, Sharp, is a synonym of *Lutrochous*, Er. In his original description of *Byrrhomorphus*, Sharp (*loc. cit.*) did not mention the genus *Lutrochous*, and presumably was not familiar with it.

LARINAE.

1861–1862. Larini, Lec., *Classif. Col. N. Amer.*, 116.
1872. Potamophilaires, Muls. et Rey, *Divers.*, 11.
1904. Potamophilini, Ganglb., *Kafer Mitteleurop.*, **4** (1) : 100.
1910. Potamophilini, Zaitzev, *Col. Cat.*, **17** : 5.
1929. LARIDAE, Boving, *Bull. Brooklyn ent. Soc.*, **24** : 55.
1931. LARINAE, Boving and Craighead, *Ent. amer.*, **11** : 45.

Of the three subfamilies in the DRYOPIDAE, the LARINAE have been generally considered the most distantly, and the DRYOPINAE the most closely, related to the ELMINAE. The studies of Boving (*loc. cit.*) and Boving and Craighead (*loc. cit.*) support this view. According to them, the larvae of the LARINAE differ from those of the DRYOPINAE and ELMINAE in possessing five ocelli on each side of the head. My unpublished studies on the female genitalia of the family would seem to indicate that quite the reverse is true. The female genitalia of the LARINAE and ELMINAE are very similar, both being of a type in which the gonapophyses of the right and left sides are alike. In the DRYOPINAE, on the other hand, the female genitalia are of a totally different, strongly asymmetrical, and more complex type, and are therefore, presumably, a more recently developed one. This latter view is supported by a study of the antennal types in the three subfamilies. In the ELMINAE the antennae are usually eleven-segmented and filiform. In certain of the LARINAE, as in certain species of New Zealand *Hydora*, Broun, an identical type is found. No species of DRYOPINAE known to me has filiform antennae. With so little data available, it is too early, but perhaps not too fanciful, to suggest that the LARINAE may be connected to the ELMINAE through some ancestral forms of *Hydora*.

Stetholus, Carter & Zeck.

1929. *Stetholus*, Carter & Zeck, *Austr. Zool.*, **6** : 52.

Carter and Zeck in their monograph of the Australian DRYOPIDAE erected the genus *Stetholus* in the subfamily ELMINAE. *Stetholus* belongs to the LARINAE next to *Potamophilinus*, Grouv. Their statement that the fore coxae are globular is incorrect, as a very slight examination will show them to be distinctly transverse.

Potamophilus papuanus (Cart.).

1930. *Stetholus papuanus*, Cart., *Proc. linn. Soc. N.S.W.*, **55** : 188, pl. IV, figs. 1–3.

P. papuanus (Cart.) is congeneric with the genotype of *Potamophilus*, Germ., *P. acuminatus*, F. Specimens of both species are before me.

Hydora laticeps (Carter & Zeck).

1932. *Stetholus laticeps*, Carter & Zeck, *Austr. Zool.*, **7** : 101, pl. XII, figs. 3–5.

After an examination of the description and figures of this species, I unhesitatingly place it in the genus *Hydora*, Broun, which is abundantly represented in New Zealand. This is the first record of a genus in this family occurring in both Australia and New Zealand.

Hydora angusticollis (Pasc.).

1877. *Helichus angusticollis*, Pasc., *Ann. Mag. nat. Hist.* (4), **19** : 141.
1880. *Potaminus angusticollis*, Broun, *Man. N.Z. Col.*, **1** : 248.
1910. *Helichus angusticollis*, Zaitzev, *Col. Cat.*, **17** : 17.
1914. *Hydora vestita*, Broun, *Bull. N.Z. Inst.*, **1** : 154.

The type of this species is in the collection of the British Museum, and *H. vestita*, Broun, is clearly conspecific with it.

Potamophilinus **costatus,** sp. n.

Elongate, oblong, subparallel, feebly convex above; very densely clothed throughout with fine, short, suberect to prostrate hairs. Nigro-cinereous, feebly shining throughout; mouth-parts rufo-testaceous, two basal segments of antennae, legs for the most part and ventral surface with the exception of sides and apical abdominal segments fulvo-testaceous. *Head* between eyes as wide as the greatest diameter of an eye; front flat, not convex, with a small, round, shallow, scarcely noticeable impression on middle between posterior half of eyes; surface very finely and densely punctate. *Prothorax* one-fourth wider than long, base one-fourth wider than apex; anterior margin feebly arcuate, anterior angles rectangular, not produced; sides moderately feebly arcuate in basal two-thirds, converging more strongly towards apex in apical than in basal half; base moderately bisinuate, basal angles obtuse, feebly rounded, turned slightly inwards. Pronotum with the apical transverse impression feeble but broad and extending to lateral margins; on each side near hind angles with an oblong, wide, deep impression; continuing and limiting the inner margin of this impression is a broad, tuberculiform ridge extending obliquely forwards and posteriorly forming part of a semi-circular, feebly elevated area; near base in front of scutellum are two large punctures. Surface with the punctures fine but coarser than those of head and separated mostly by twice their own diameters. *Elytra* more than three times as long as prothorax; inner apex of each elytron acute, feebly produced, with an outer obtuse tooth separated from the inner apex by less than the width of the sutural interval; sutural interval flat in basal one-seventh, thence elevated to apical one-tenth; second flat and with the usual stria between sutural and second stria present on basal one-fourth only; third moderately strongly elevated from basal one-tenth to apical one-half, fourth flat, fifth scarcely noticeably convex on basal two-fifths, sixth flat, seventh feebly convex in humeral region; all intervals apparently impunctate; humeri prominent. Striae feebly impressed, strial punctures separated by about or slightly more than their own diameters. Scutellum strongly convex, in the form of an equilateral triangle with the angles rounded. Beneath with the pubescence mostly testaceous. Ventral abdominal segments at middle with the pubescence much longer than elsewhere.

Length, 4 mm.; breadth, 1·8 mm.

Type: ♀. Ceylon: Peradeniya, 23 March, 1914 (*A. Rutherford*).

It is apparently most closely related to the Javanese *Potamophilinus perplexus*, Waterh. (1876), from which it differs in the elevated, alternate basal intervals.

Potamophilinus **tuberculatus,** sp. n.

♀. Elongate, oblong, subparallel, feebly convex above; very densely clothed throughout with fine, short, suberect to prostrate hairs. Nigro-cinereous, feebly shining throughout; mouth-parts and claws rufo-testaceous, basal two segments of antennae, basal parts of legs and middle portion of ventral surface fulvous. *Head* nearly flat in front; between anterior portion of eyes narrower than the greatest diameter of an eye; between antennal bases feebly convex and narrower; between posterior portion of eyes with a median, round, moderately large, very shallow impression; surface finely, densely punctate. *Prothorax* about one-fourth wider than long, base one-fourth wider than apex; anterior margin feebly arcuate, anterior angles nearly rectangular, not prominent; sides feebly bisinuate, arcuate at middle, converging moderately strongly towards apex in apical two-thirds and feebly towards base in basal one-third; base moderately bisinuate, basal angles rectangular, not produced. Pronotum with the apical transverse impression moderately strong, broad and extending to lateral margins; base in front of scutellum with a large, feebly impressed, slightly transverse area at the middle of which are two moderately large punctures. *Elytra* slightly more than three times as long as prothorax; inner apex of each elytron feebly, obtusely angulate; outer apex more caudad and with a short, broad, obtuse tooth; on suture moderately anterior to inner apex of each elytron is a long, erect, acute tooth. Humeri gibbous, prominent; sutural interval elevated from basal one-fourth to apical, sutural spine; second interval flat, third interval feebly elevated from near base to apical two-thirds where it ends in a very prominent, cariniform tubercle; other discal intervals flat; striae feebly impressed, rather regularly punctate with slightly coarse punctures which are usually separated by about twice their own diameters. Scutellum rather large, convex; in the form of an equilateral triangle.

♂. Tubercle of third elytral interval very feeble; sutural, subapical tooth short, feebly acute.

Length, 4 mm.; breadth, 1·8 mm.

Type: ♀. Ceylon: Peradeniya, 23 March, 1914 (*A. Rutherford*).
Paratypes: 2 ♀♀ and 1 ♂. Same data as above.

Potamophilinus tuberculatus, Hntn., is most closely related to *P. longipes*, Grouv. (1892), but is shorter and proportionally broader, and, in addition, the new species may be separated from closely related species by the presence in the female of a very prominent, longitudinal tubercle on the third interval on apical two-thirds, and a feeble, longitudinal tubercle on the same position in the male.

Potamophilinus **spinicaudus,** sp. n.

♀. Moderately elongate, subparallel, very feebly convex above; densely clothed throughout with fine, rather short, erect to prostrate hairs. Derm black, feebly shining; mouth-parts except maxillary palpi and claws rufo-testaceous; two basal segments of antennae, basal parts of legs and middle of ventral surface fulvous. *Head* nearly flat in front; slightly narrower or as wide between anterior portion of eyes as greatest width of an eye; between posterior portion of eyes with a round, moderately large, scarcely noticeably impressed area; surface finely, densely punctate. *Prothorax* nearly as long as wide, base more than one-fourth broader than apex; anterior margin moderately strongly arcuate, anterior angles obtusely rounded; sides nearly straight, converging moderately strongly towards apex and from about basal one-tenth to base abruptly rounded; base moderately strongly bisinuate, basal angles obtusely rounded, nearly obliterated. Pronotum with the base in front of scutellum elevated into a short, transverse ridge; apical transverse impression broad but feebly impressed. Surface finely punctate, with the punctures separated by one to two times their own diameters. *Elytra* distinctly less than three times

as long as prothorax; apices separately acute, moderately produced; on the suture a short distance anterior to the apex there is on each side a moderately long spine curving inwards and caudad. Humeri gibbous, prominent; on each side at base between scutellum and humerus is a very prominent, rounded tubercle; intervals very finely, moderately densely punctate; sutural feebly elevated from basal one-third to apex; third and fifth scarcely noticeably convex; second and fourth flat; all striae feebly impressed, feebly, moderately finely punctate, strial punctures nearly absent near suture and towards apex; stria between sutural and second stria absent and all striae scarcely visible near base. Scutellum subquadrate, half as large as basal elytral tubercle; very strongly convex or tuberculiform.

Length, 4 mm.; breadth, 2 mm.

♂. Slightly smaller. Pronotum without tubercle in front of scutellum but with a large, round, shallow depression at the base of which on each side of the middle is a large puncture. Elytron with basal tubercle very feeble; apices of elytra separately, obliquely, narrowly truncate. Scutellum nearly flat. Fifth ventral abdominal segment broadly, shallowly emarginate; sixth deeply, broadly emarginate.

Type: ♀. Africa: Sierra Leone, Najala, 28 Oct., 1934 (*E. Hargreaves*).

Paratypes: 1 ♀ with same data as above; and 1 ♂ collected on 1 Nov., 1929, by the same collector.

This species is most closely related to *Potamophilinus notabilis*, Grouv. (1898), and it lacks with this species the usual, short stria interposed between the bases of the sutural and second striae. It is probable that these two species may later be placed in a new genus. *P. spinicaudus*, Hntn., is the smaller of the two species, and the female is also easily separable by its two apical, sutural spines.

A key to the species of Potamophilinus, *Grouv.*

1. Prothorax with the sides before the hind angles sharply sinuate or excised. Java . . . . . *javanicus*, Coquer. (1851).
–. Prothorax with the sides before the hind angles not sharply sinuate or excised . . . . . 2.
2. Elytra with a short stria between bases of sutural and second striae . . 4.
– Elytra without a short stria between bases of sutural and second striae . 3.
3. Species 4 mm. long; female with an acute spine on suture anterior to apex. Sierra Leone, Africa . . . . . *spinicaudus*, Hntn.
– Species 5 mm. long; female without an acute spine on suture. Congo, Africa . . . . . *notabilis*, Grouv. (1898).
4. Pronotum with an elevated, longitudinal line on apical one-half. Java *orientalis*, Gory (1829–1844).
– Pronotum without an elevated, longitudinal line on apical one-half . . . 5.
5. Elytra with an acute tooth on suture near apex . . . . . 6.
– Elytra without an acute tooth on suture near apex . . . . . 7.
6. Each elytron on apical two-thirds with a longitudinal tubercle on third interval. Ceylon . . . . . *tuberculatus*, Hntn.
– Third interval of each elytron without a tubercle on apical two-thirds. Burma . . . . . *longipes*, Grouv. (1892).
7. Elytra with the sutural, third and fifth intervals subcostate on basal one-third. Ceylon . . . . . *costatus*, Hntn.
– Elytra with the sutural, third and fifth intervals nearly flat. Java *perplexus*, Waterh. (1876).

Hexanchorus **tibialis**, sp. n.

Elongate, narrow, subparallel, feebly convex above; densely clothed above with fine, short, sometimes erect but usually prostrate, greyish-brown hairs. Derm nigro-cinereous

for the most part; ventral and lateral sides of the two basal antennal segments and bases of legs fulvous; mouth-parts and claws rufo-testaceous. *Head* nearly flat in front; anteriorly between eyes distinctly narrower than the greatest breadth of an eye; posteriorly between eyes with a round, median, scarcely impressed area and slightly anterior and lateral to this an oval, larger but equally as shallow impression. Surface minutely punctate with the punctures separated by one or two times their own diameters. *Prothorax* distinctly less than one-fourth broader than long, base about one-fourth broader than apex; anterior margin feebly arcuate, anterior angles obtusely rounded; sides in basal portion feebly arcuate and converging feebly towards apical, transverse impression, sides in front of apical impression nearly straight, very feebly diverging towards apex; basal margin trisinuate, with the margin in front of the scutellum very feebly sinuate, nearly straight, basal angles obtusely rounded, distinct. Pronotum near hind angles moderately deeply and widely excavated; surface in front of scutellum with two large punctures and anterior to these with a small, median, longitudinal impression; finely punctate but with the punctures distinctly coarser than those of the head and separated mostly by about two times their own diameters. *Elytra* slightly more than three times as long as prothorax; apices not produced, obtusely rounded; humeri broadly but feebly gibbous; intervals microscopically, densely punctate; sutural flat near base, elsewhere feebly convex; other discal intervals feebly convex near base, elsewhere nearly flat; striae well impressed basally but from about apical one-third to apex obsolete, strial punctures slightly coarse, unevenly spaced but usually separated by about two to four times their own diameters. Scutellum moderately large, flat, in the form of an equilateral triangle with the angles rounded and the apex broadly rounded. Beneath with the prosternal process about twice as long as broad; posterior part of the metasternum and the middle of the first three basal abdominal segments strongly concave; pubescence usually slightly fulvous, prostrate and longer than dorsal pubescence. Apex of fifth abdominal segment moderately deeply, broadly emarginate, with the angles formed by the emargination broadly rounded; sixth abdominal segment not visible in type. Apex of hind tibiae with a short, obliquely longitudinal, sharply elevated carina; all tarsi with a slender seta (about as long as fourth segment) arising from the ventral apex of the fourth segment.

Length, 4 mm.; breadth, 1·1 mm.

Type: ♂. Bolivia: Cochambamba (*Grouvelle*).

This species is apparently most closely related to *Hexanchorus gracilipes*, Sharp (1882), but differs in its narrower form and in possessing in the male a fine carina on inner apex of hind tibiae.

Elminae.

Elmis, Latr.

1802. *Elmis*, Latr., *Hist. nat. Fourmis*, 398.

This genus is represented in North America by a small number of species allied to *Elmis addenda*, Fall (figs. 1, adult; 2, prosternal process; 3, maxillary palpus). With the exception of *Narpus*, Csy., it is the only North American genus possessing three-segmented maxillary palpi known to me. From *Narpus*, Csy., *Elmis*, Latr., may be immediately separated by the presence of a sublateral carina on each side of the prothorax. The Australian genus, *Kingiolus*, Carter & Zeck (1929) is very similar, but differs in having the sublateral carinae of the prothorax present only on the basal half. In addition to *E. addenda*, Fall., *E. ornata*, Schffr., belongs in the genus *Elmis*. Possibly other North American species belong here, but it is impossible to say from the descriptions alone.

Heterlimnius, gen. n. (figs. 4, 5).

Short, broadly obovate. *Head* partially retractile; antennae narrowly linear, eleven-segmented; maxillary palpi four-segmented; mandibles acute at apex, each with two small, acute, subapical teeth. *Pronotum* with a sublateral sulcus extending to apical three-fifths; surface without transverse or longitudinal impressions; disk punctate. *Elytra* striate punctate; without raised lines. Scutellum subovate. Beneath with the sides of the sterna and ventral abdominal segments extremely densely and finely tomentose. Prosternal process (fig. 4) moderately short, broad, narrowing behind and broadly rounded at apex. Metasternum with a longitudinal, impressed line. Legs moderately long; tibiae with a fringe of tomentum on inside edge.

Genotype: *Elmis koebelei*, Martin.

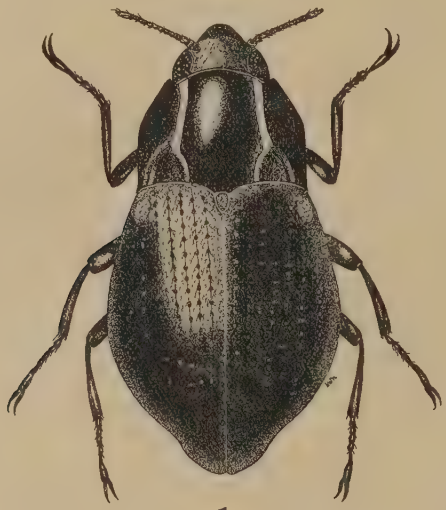


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Fig. 1.—*Elmis addenda*, Fall, California: Inyo Co.

Heterlimnius, Hntn., superficially most closely resembles the Australian genus, *Kingiolus*, Carter & Zeck (1929), but has four instead of three-segmented maxillary palpi. It is close to no other described North American genus. From the Old World *Latelmis*, Reitt. (1883), *Heterlimnius* differs in its abbreviated instead of complete sublateral, pronotal carinae.

In addition to the genotype, the following species should be placed in *Heterlimnius*: *divergens* (Lec.) (*Elmis*); *tardellus* (Fall) (*Elmis*); *cryophilus* (Musgr.) (*Limnius*); *subarcticus* (Brown) (*Limnius*); *trivittatus* (Brown) (*Limnius*); *ovalis* (Lec.) (*Elmis*); *elegans* (Lec.) (*Elmis*); *quadrimaculatus* (Horn) (*Elmis*).

Undoubtedly, other described North American species are referable to *Heterlimnius*, Hntn.

Microcylloepus, gen. n. (figs. 6, 7).

Short, moderately broad, subparallel. *Head* partially retractile; antennae narrowly linear, eleven-segmented; maxillary palpi (fig. 7) four-segmented; mandibles with three

apical teeth. *Prothorax* with a sublateral carina extending from base to apex; with a strong, transverse impression on apical one-third; with a broad, short, median impression; with two oblique, subbasal impressions. *Elytra* striate punctate; each elytron with at least one strongly raised, lateral line continued nearly to apex. Scutellum moderately small, nearly round. Beneath with a narrow belt at sides of prosternum, a wider belt at sides of meso- and metasternum and entire sides of ventral abdominal segments extremely densely and finely tomentose. Prosternal process (fig. 6) moderately long, moderately wide, broadly truncate at apex. Metasternum longitudinally channelled. Tibiae fringed with tomentum on inside.

Genotype: *Elmis pusillus* (Lec.).

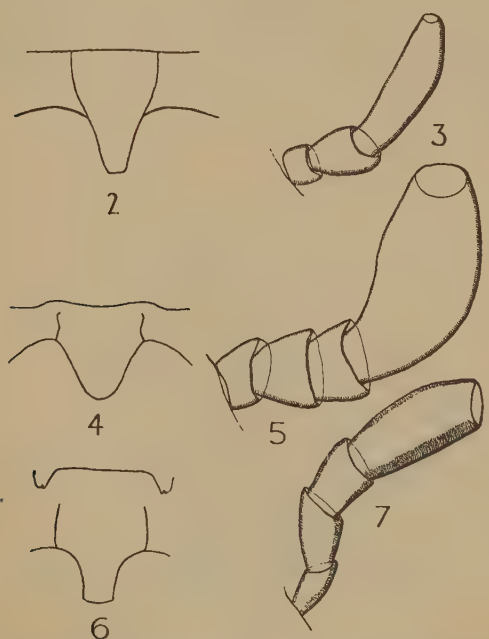

FIG. 2.—Prosternal process of *Elmis addenda*, Fall; fig. 3. Maxillary palpus of *E. addenda*; fig. 4. Prosternal process of *Heterlimnius koebelei* (Martin); fig. 5. Maxillary palpus of *H. koebelei*; fig. 6. Prosternal process of *Microcylloepus pusillus* (Lec.); fig. 7. Maxillary palpus of *M. pusillus*.

Microcylloepus, Hntn., can only be compared with *Cylloepus*, Er. (1847), but differs in having a strong, transverse impression on apical one-third of prothorax. It is interesting to note that the genus *Leptelmis*, Sharp (1888), is related to *Stenelmis*, Duf. (1835), in apparently much the same manner as *Microcylloepus*, Hntn., is related to *Cylloepus*, Er.

In addition to the genotype, the following species should be referred to *Microcylloepus*, Hntn.: *inaequalis* (Sharp) (*Elmis*); *distortus* (Sharp) (*Elmis*); *mexicanus* (Hntn.) (*Limnius*); *vandykei* (Hntn.) (*Limnius*); *foveatus* (Lec.) (*Elmis*); *similis* (Horn) (*Elmis*).

ON A SPECIES OF *CEROPLASTES* (HEM. COCCIDAE), HITHERTO CONFUSED WITH *C. CERIFERUS*, ANDERS

By E. E. Green, F.R.E.S.

Ceroplastes **pseudoceriferus,** sp. n.

Adult female with a dense covering of creamy-white wax, as large as and similar to that of *ceriferus*. Denuded female (*a*, *b*) differing from *ceriferus* in the following particulars :—

The dorsum is less highly convex and the marginal areas are somewhat depressed and out-turned. The caudal process (*c*) is shorter and conical and directed upwards, forming approximately an equilateral triangle in outline. The spines on the stigmatic areas (*d*) are relatively larger, more numerous and more crowded. The submarginal conical processes, also, are larger and more prominent.

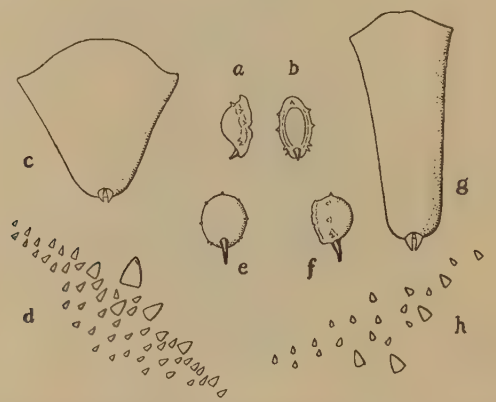

Fig. 1.—*Ceroplastes pseudoceriferus*, *a*, *b*, denuded ♀, × 2; *c*, caudal process, × 20; *d*, stigmatic area, × *c*. 150. *Ceroplastes ceriferus* Anders.; *e*, *f*, denuded adult ♀, × 1⅓; *g*, caudal process, × 20; *h*, stigmatic area, × *c*. 150.

Comparison of the corresponding parts of *ceriferus* show the denuded insect (*e*, *f*) to be bacciform, with the sides approximately perpendicular. The caudal process (*g*) is long and cylindrical. The stigmatic spines (*h*) are more scattered, fewer in number and smaller in size.

I have typical examples of *pseudoceriferus* from Ceylon, on an undetermined plant; from India, on *Azadirachta indica* and *Diospyros montana*. A single example of the same species was found on a young plant of Japanese Maple, in a nursery garden at St. Albans, Herts, whence it had recently been imported from Japan. This particular specimen was at first mistaken for *C. ceriferus*, and was recorded as such (1921, *Ent. Mon. Mag.*, (3) **8 :** 259).

SOME NEW PHYTOPHAGA (COL.) FROM AFRICA

By G. E. Bryant, F.R.E.S.

(*Entomological Assistant, Imperial Institute of Entomology.*)

Eumolpinae.

Scelodonta **cuprea,** sp. n. (fig. 1).

Dark cupreous, the eight apical joints of the antennae black; prothorax coarsely transversely wrinkled; elytra with transverse rugose wrinkles, between the costae, the costae more defined towards the apex, bearing a single row of scattered white hairs; underside with the parapleurae of the breast without pubescence. L. 4 mm.

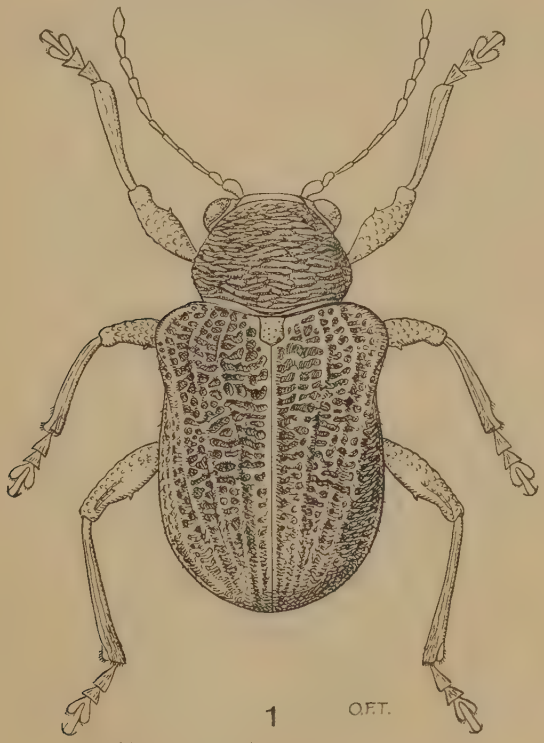

Fig. 1.—*Scelodonta cuprea*, sp. n.

Head cupreous strongly rugose, the vertex with a central groove, supraocular sulci very deep; clypeus rugose; antennae with the three basal joints cupreous, the remainder black, the joints 3 to 6 slender, and the 5 terminal joints broader. Prothorax dark cupreous a little broader than long, the sides rounded and widest behind the middle, the whole surface very coarsely transversely wrinkled.

Scutellum cupreous, pentagonal, with a few strong punctures in the centre and at the apex. Elytra dark cupreous, widest at the shoulders, which are prominent, deeply transversely wrinkled between the costae, the costae more defined towards the apex, bearing a

single row of scattered white hairs. Legs with the femora dentate and rugosely punctured. Underside cupreous, the parapleurae of the breast without pubescence, metasternum strongly punctured, the ventral segments almost impunctate, with very fine short pubescence, pygidium finely punctured.

Uganda: Wamala, 3,800 ft., Jan. 1912 (*S. A. Neave*), 1 specimen; Tero Forest, July 1912 (*C. C. Gowdey*), 1 specimen; Kampala, Aug. 1913 (*C. C. Gowdey*), 5 specimens; Bulambula, Sept. 1929 (*G. H. E. Hancock*), 1 specimen. Type in the British Museum.

Allied to *S. kibonotensis*, Wse., but may be distinguished by its more rugose appearance, especially on the elytra, and the more prominent costae.

Scelodonta **gowdeyi,** sp. n. (fig. 2).

Cupreous, tinged with aeneous, especially on the costae of the elytra; antennae black except for the basal joints; prothorax transversely plicate, except for the front which is

Fig. 2.—*Scelodonta gowdeyi*, sp. n.

punctured; elytra strongly and irregularly punctured in rows, costate more strongly towards the apex, the costae tinged with aeneous, with single rows of white hairs; femora dentate; the parapleurae of the breast pubescent. L. 4 mm.

Head cupreous, somewhat rugosely punctured, and sparingly pubescent, the vertex with a strong central groove, supraocular sulci very deep; clypeus with a few strong punctures; antennae with the five apical joints black and broader, the basal joints cupreous. Prothorax cupreous, slightly transverse, strongly transversely plicate, except for the frontal portion which is strongly punctured, furnished with scattered white hairs. Scutellum pentagonal, with a few strong punctures and scattered white hairs. Elytra cupreous tinged with aeneous on the costae, obliquely shaped at the shoulders, somewhat depressed behind the scutellum, strongly punctured and costate, the punctures furnished with single white hairs. Legs cupreous, clothed with white pubescence, the femora strongly punctured and dentate. Underside cupreous, the parapleurae of the breast with dense white pubescence, the ventral segments feebly punctured, bearing long white hairs.

Uganda: Entebbe, Apr. 1914 (*C. C. Gowdey*), 1 specimen; Kampala, Aug. 1915, Apr. 1919 (*C. C. Gowdey*), 2 specimens.

Type in the British Museum.

Allied to *S. lefevrei*, Jac., but the costae of the elytra much stronger, and without the fuscous spots.

Scelodonta **vitivora**, sp. n.

Cupreous, pubescent, antennae with the five terminal joints blackish; head strongly punctured; prothorax transversely and rather finely plicate, with a few punctures on the median portion of the front margin; elytra rather finely and irregularly punctured near the suture, transversely rugose at sides, pubescent, costate. L. 4 mm.

Head strongly punctured with scattered pubescence, the vertex with a slight central groove, the supraocular sulci very deep, the clypeus strongly punctured. Antennae with the six based joints more or less cupreous, the first two the brightest, the apical joints blackish and broader. Prothorax slightly transverse with the sides rounded, transversely and finely plicate, a few punctures on the median portion of the front margin. Scutellum transverse with a few large punctures on its centre. Elytra not very tapering, and the shoulders not very prominent, finely and irregularly punctured near the suture, the sides more transversely rugose, slightly costate, the costae stronger towards the apex, with lines of white hairs. Legs with long white pubescence, the femora strongly punctured and dentate. Underside cupreous, sides of the prothorax below and of the breast clothed with dense white pubescence, the ventral segments finely punctured and clothed with scattered white pubescence.

Transvaal: Barberton, 21.ix.1929. Damaging vine buds, 4 specimens. Forwarded by the Division of Entomology, Pretoria.

Type in the British Museum.

Allied to *S. vitis*, Bryant, from Natal, but differs in the head not being so convex, and not nearly so closely punctured, the punctures being coarser, the prothorax is slightly more finely plicate, and the elytra more costate, and the underside with dense white pubescence.

Halticinae.

Phyllotreta **turneri**, sp. n. (fig. 3).

Oblong, bronze black, the antennae, front and middle legs and hind tibiae flavous, an elaborate ivory-coloured pattern on the elytra forming three irregular transverse bands not meeting at the suture, the basal and median bands joined on the outer side. L. 2 mm.

Head bronze black, with a few scattered punctures, strongly longitudinally carinate

between the insertion of the antennae; labrum fulvous. Antennae long and slender extending beyond the middle of the elytra, flavous, with the seven terminal joints slightly fuscous, the first joint the longest, about equal to the second and third together, the remaining joints each about equal to the fourth, which is a little longer than the third, the apical joint produced into a point. Prothorax bronze-black finely and closely punctured, transverse, the sides slightly rounded. Scutellum small, bronze-black impunctate. Elytra a little more than three times as long as the prothorax, the sides nearly parallel, rounded at the apex, finely and closely punctured, bronze-black with an elaborate ivory pattern forming three irregular transverse bands, not meeting at the suture, the basal band just touches the base leaving the shoulders black, and is connected to the median band at the outer side, not touching the lateral margin, the median band expands into two irregular patches near the suture, the apical band is formed of two very irregular patches. Legs flavous, with the hind femora black. Underside black.

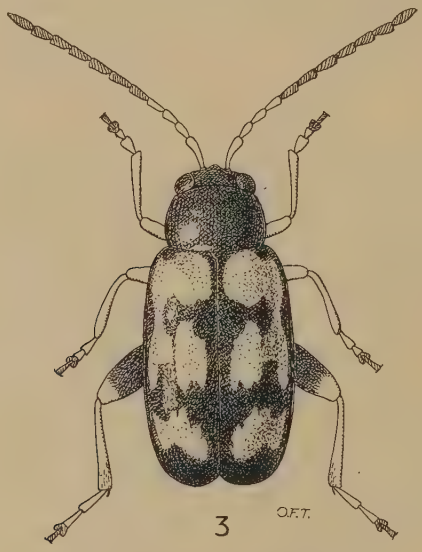

Fig. 3.—*Phyllotreta turneri*, sp. n.

S. W. Africa: Aus, 30.xi.1929 (*R. E. Turner*), 4 specimens.

Type in the British Museum.

A very conspicuous species and distinguished from all other African species by its elaborate pattern.

THE COMMON COFFEE MEALY-BUG OF KENYA (HEM. COCCIDAE)

By Richard H. Le Pelley, F.R.E.S.
(*Entomologist, Kenya Colony and Protectorate.*)

In 1923 there occurred a severe infestation of coffee in Kenya by a species of mealy-bug, and since that date the insect has continued to do considerable damage on coffee plantations, necessitating large annual expenditures on control measures.

While for several years the insect has been provisionally considered as *Pseudococcus lilacinus*, Ckll., its true identity has been a matter of considerable speculation. The opportunity of comparing a good series of the Kenya insect with the large collection of *Pseudococcus lilacinus*, Ckll. (including type specimens), at Washington, D.C., U.S.A., made it possible for the first time for the insects to be recognised with certainty as specifically distinct, and the importance of the insect in Kenya determined the writer to describe it without delay, particularly in view of possible biological control efforts by the introduction of parasites.

Pseudococcus **kenyae**, sp.n.

External appearance described by Kirkpatrick (1927) and James (1933) and not treated here.

Body oval; length in mounted specimens 1·6 mm. to 2·5 mm.; breadth 1·3 mm. to 1·9 mm. (fig. 1, *b*).

Antennae eight-segmented, segments with apparently random variations in length between the limits given, in microns :—(1) 51 to 67 with a mean length of 58; (2) 49 to 64, mean 56; (3) 49 to 67, mean 57; (4) 27 to 40, mean 35; (5) 27 to 42, mean 35; (6) 35 to 42, mean 39; (7) 42 to 51, mean 46; (8) 96 to 110, mean 102. With one stout seta on the seventh segment, and normally three on the eighth. *Legs* not unusual, fairly stout. Length of joints of posterior pair, in microns, approximately as follows : coxa 100, trochanter 90, femur 230, tibia 200, tarsus 100. Anterior legs usually slightly smaller than others. Length of femur in specimens measured (and probably always) at least twice its breadth. Claws not toothed, claw digitules rather stout, swollen at apices, tarsal digitules slender, only slightly knobbed, projecting slightly beyond end of claw. Minute pores on coxae and tibiae of posterior legs normally as shown in fig. 1, *c*. *Beak* two-segmented, length about 130 microns, breadth about 100 microns. Both pairs of dorsal ostioles distinct, lips with some sclerotisation, each ostiole with a slight concentration of trilocular pores totalling about 20, and with these from two to seven or eight short setae. Series of *cerarii* complete, 18 pairs, each with two cerarian spines, stout at base, normally drawn out, seta-like, at the extreme tip. Anal lobe cerarii and two pairs next to these with spines and about 29 microns in length, other cerarian spines about 23 microns; each cerarius except the anal with a group of from 6 to 12 trilocular pores around the bases of the spines, and usually without accessory setae. The following variations in the cerarii observed :—3 spines, of approximately average and equal size, with one small spine, or with two small spines (observed in less than one per cent. of the cerarii). One spine only (observed in less than two per cent. of the cerarii). The number of trilocular pores may be reduced to two or three only, and the spines may rarely be separated by as great a distance as twice the length of a spine. Upper and lateral faces of each anal lobe lightly sclerotised, usually, but not invariably, staining more deeply than other parts. Trilocular pores associated with the anal cerarius and else-

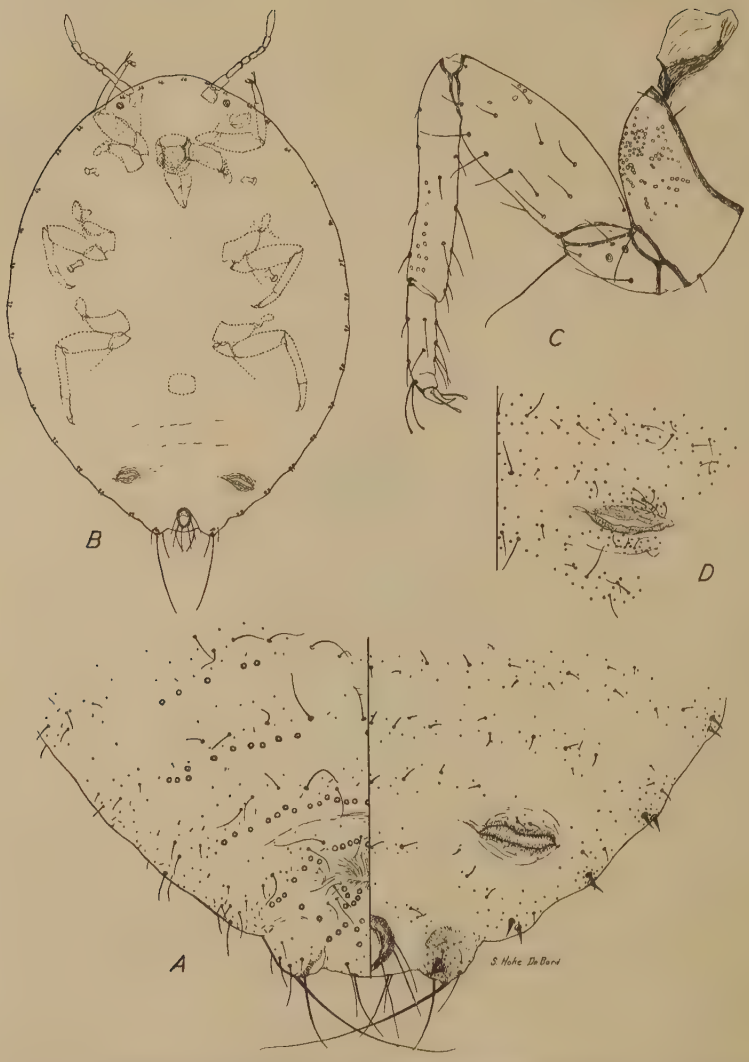

Fig. 1–*a–c*, *Pseudococcus kenyae*, adult ♀, *a*, posterior segments of abdomen, × 104; *b*, outline of body, optical section, × 40; *c*, posterior leg, × 165; *d*, *Pseudococcus lilacinus*, adult ♀, portion of dorsal surface of abdomen, × 104.

where on the dorsal sclerotised area of the anal lobe, about 25 in number. Ventral sclerotised thickening on anal lobe elongate, very similar to that in *Pseudococcus citri* (Risso). Apical setae about 250 microns, one sub-apical seta about 100 microns on the ventral sclerotised bar, three or four others on ventral side of lobe from about 20 microns to 50 microns. Three or four on dorsal side of lobe about 15 microns to 30 microns. Anal ring typical for genus with two rows of pores and six setae from 100 to 120 microns. Two pairs of slender setae, on the ventral surface near the margin of the body, about equidistant from the anal lobes and each other, the longer pair about 90 to 100 microns, the smaller about 50 to 70 microns. *Trilocular disc pores* well distributed over dorsal and ventral surfaces, nowhere obviously clustered except in proximity to cerarii and ostioles and, slightly, at openings of spiracles; apparently scattered but probably in ill-defined segmental bands. Small tubular ducts present in small numbers on ventral surface, slightly clustered near cerarii of posterior abdominal segments, normally lacking on dorsal surface. Multilocular disc pores confined to ventral abdominal region, in five distinct segmental groups, one posterior to the genital opening, the others in single or double rows (sometimes with one or a very few scattered pores in addition) on segments anterior to this. Pores normally absent in the middle region of the two anterior rows. The total number of these pores (in specimens examined) from 68 to 12[illegible] with a mean of 91 in groups as follows :– posterior group, 13 to 33, mean 20; 2nd group, 11 to 28, mean 19; 3rd group, 17 to 37, mean 28; 4th group, 16 to 32, mean 18; 5th group, 3 to 10, mean 6. *Dorsal setae* short, fairly stout, almost spine-like in shape, with a maximum observed length of 23 microns in the mid-dorsal region of the posterior abdominal segments, arranged for the most part in single transverse rows across the segments, this arrangement being most marked on the posterior abdominal segments. Usually 10 to 12 and rarely up to 15 or more setae approximating 20 microns or above on the dorsal side of each of the last abdominal segments (except the anal which bears two pairs just anterior to the anal ring which usually differ in size, the larger up to 28 microns). With scattered, usually smaller, setae in addition. Ventral setae comparatively long and slender up to 120 microns on the head where the largest occur. Ventral setae on abdominal segments up to 70 microns. Ventral cicatrix present, large, quadrate, rather poorly defined. Male not available for description although not uncommon in the type locality.

The species has been described from 35 prepared specimens. Three specimens from *Coffea arabica* growing at the Scott Agricultural Laboratories, near Nairobi, Kenya Colony, East Africa, collected by F. B. Notley, with the date June 23, 1933; 30 specimens from the same source collected by F. B. Notley, with the date March 1, 1935; and two specimens labelled "From *Coffea arabica*, Nairobi, Kenya, East Africa, June 20, 1930," by H. C. James. Although a number of other lots of specimens of mealy-bugs taken from coffee in Kenya have been studied in relation to this species, it has seemed best to confine the description and the type series to the specimens obtained from one locality near Nairobi. After the study of additional specimens beyond those now at hand, it may prove possible to extend considerably our knowledge of this species.

The holotype and a number of paratypes have been deposited in the British Museum. A number of paratypes are at Washington, D.C., U.S.A. Further paratypes are deposited in the collection of the Department of Agriculture, Kenya Colony and Protectorate.

The insect differs from *P. lilacinus* in the following respects. The dorsal setae of *lilacinus* are considerably longer than those of *kenyae*. On the mid-dorsal region of the posterior abdominal segments of *lilacinus* the dorsal setae reach a length of 70 microns in contrast to an observed maximum of 23 microns for *kenyae*. The following comparison of specimens of the two species demonstrates the marked difference between them in respect of these setae. The

largest dorsal setae on the last five abdominal segments of a typical specimen of *P. kenyae* (33 measured) had a maximum length of 22 microns with an average of 18 microns, none smaller than 11 microns (though such were present) being measured. The dorsal setae on corresponding segments of a specimen of *lilacinus* (49 measured) had a maximum length of 69 microns with an average of 38 microns, none smaller than 18 microns being measured. This difference alone is diagnostic, being consistent in all specimens of both species examined (figs. 1, *a* and 1, *d*). In addition there are a number of less uniform differences. The legs of *lilacinus* are stouter than those of *kenyae*, the length of the femur in the latter being not less than twice its breadth, while in *lilacinus* it is frequently less; individual insects in the two species, however, approach each other in this respect. The average number of multilocular disc pores is somewhat higher in *lilacinus* although there is considerable overlapping in this respect, except in the anterior group where the average number in *kenyae* is six, with a maximum of ten, while *lilacinus* has an average of 18 with a minimum of 12 in specimens examined. *P. kenyae* is oviparous, the period of external incubation of the egg being short and insects in the body cavity of the female after mounting are not in so advanced a condition as in mounted specimens of *lilacinus*, which has been assumed to be ovoviviparous.

Living adult females of *P. kenyae* are separable from *P. citri* (Risso) by the fact that the eggs of *citri* in Kenya have a much longer period of external incubation. The insects are separable, by the number of multilocular disc pores which in *citri* averaged 240, with a minimum of 221 in specimens examined, this minimum being considerably above the maximum number in *kenyae*. The dorsal setae of *citri* are usually slightly longer than corresponding ones on *kenyae*, and the legs are usually more slender in *citri*. In deeply stained specimens of *kenyae* the dorsal sclerotised area of the anal lobe, which is not observable in *citri*, is also of value as a distinguishing character.

Acknowledgements :—The writer is greatly indebted to the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture for the facilities and privileges accorded. He wishes to acknowledge Dr. Harold Morrison's invaluable advice and help and to thank Miss Louise M. Russell for her help particularly with the preparation of material for study.

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NOTE SUR *PURPURICENUS INDUS*, SEM. (COL., CERAMBYCIDAE)

Par N. N. Plavilstshikov.
(*Moscow.*)

Cette espèce a été citée par Dr. C. J. Gahan (1906, *Faun. Brit. Ind. Col.*, 1, Cerambycidae : 186) sous le nom " *Purpuricenus haussknechti*, Witte." M. A. Séménov-Tian-Shanski a conclus, d'après l'étude de la description de Gahan, que *P. haussknechti*, Gah. 1906 (*nec* Witte 1871) est une espèce nouvelle et l'a nommé *P. indus*, Sem. (1908, *Rev. russe d'Ent.*, **7** : 261). Mais M. Séménov-Tian-Shanski n'avait pas publié la description de *P. indus* car il n'avait sous ses yeux qu'une description incomplète de Gahan. M. J. C. M. Gardner m'a communiqué deux exemplaires (♂♀) de *P. indus*, Sem. (Forest Research Institut, Dehra Dun), et M. G. J. Lockley a étudié pour moi les *P. indus* dans le British Museum—l'amabilité pour laquelle je remercie cordialement mes collègues anglais. Je donne ici la description de cette espèce mal connue, qui est si différente de *P. wachanrui*, Levr.

Purpuricenus (s.str.) *indus* (Sem.).

Purpuricenus haussknechti, Gahan, 1906, *Fn. Br. Ind.*, p. 186.
Purpuricenus indus, Sem., 1908, *Rev. russe d'Ent.*, **7** : 261.

♂. *Front* court, fortement transversal, avec une grande impression transversale au milieu; profondement et largement sillonné entre les antennes; très irrégulièrement et indistinctement, dispersement, ruguleusement ponctué (la sculpture est très indistincte, on peut dire que le front est plus ou moins inégal). Clypeus très court. Les joues assez grandes, anguleusement attenuées en avant, assez densement et grossement, mais pas profondement ponctuées. Les tempes petites, finement et indistinctement ponctuées. La gorge grossement et profondement ponctuée dans sa partie apicale, lisse et finement striée transversalement dans sa partie basale. Les yeux médiocres, fortement échancrés, avec lobe supérieur très petit et étroit. Tubercules antennifères fortement prolongées, intérieurement ce prolongement est long et vertical, un peu emoussé sur son sommet. Vertex grossement et densement, ruguleusement ponctué, sans sillon longitudinal. Antennes plus longues que le corps (surpassent les élytres par 8–11 articles). 1er article fortement épais, un peu atténué vers le sommet, grossement mais non densement ponctué; fortement comprimé dans son tiers basal et comme carèné ici extérieurement. 2me article petit, presque pas plus long que large. 3me article long, distinctement épais sur le sommet, un peu anguleusement prolongé sur son côté externe, en 1·5 fois plus long que le 1er article, distinctement plus long que le 1er et 2me articles réunis, plus long que le 4me article; ce dernier épais sur son sommet, avec une petite dent. 5me et 6me articles égals dans leur longueur (= 4me), anguleusement prolongés sur leur sommet qui est un peu épais. 11me article distinctement appendiculé, composé de deux lobes; l'appendix long, jusqu'au $\frac{2}{3}$ de la partie basale de l'article; antennes paraissant comme composées de 12 articles.

Pronotum un peu, mais distinctement plus long que large sur sa base, fortement tuberculé latéralement, étroitement rébordé sur son bord antérieur, avec une large constriction basale; inégal sur son disque : au milieu du disque une callosité longitudinale, lisse, sans ponctuation ou avec ponctuation très dispersée dans le tiers basal avec deux tubercules très indistinctes et densement ponctuées; modérément convexe; sur son disque grossement et densement ponctué, la ponctuation est très régulière, absolument non ruguleuse; plus densement et finement, moins régulièrement ponctué latéralement, cette ponctuation est plus ou moins ruguleuse.

Elytres parallèles, arrondies sur le sommet, l'angle sutural distinct mais non prolongé;

très rudement et très ruguleusement ponctuées sur leur tiers basal, très densement et très finement, ruguleusement ponctuées sur leur moitié apicale; avec les traces distinctes de deux lignes longitudinales (plus distinctes sur la partie rouge des élytres). L'écusson long et étroit, avec une impression longitudinale qui est densement couverte de courts poils presque velutée.

Prosternum densement et assez fortement ruguleusement ponctué; saillie prosternale atténuée postérieurement, emoussé sur le sommet, fortement rébordé latéralement, avec une carène longitudinale qui est distinctement tuberculé vers le sommet. Metasternum assez densement mais non rudement ponctué, herissé de courts poils brunâtres. Mesosternum densement ruguleusement ponctué; saillie mésosternale large, échancré sur son sommet, tuberculé en avant de cette échancrure. Abdomen assez finement et assez densement ponctué, herissé de courts poils brunâtres, avec les bords postérieurs des segments lisses, striés. 6me segment abdominal beaucoup plus court que le 5me, arrondi sur le sommet. Fémurs un peu dilatés, grossement et assez densement ponctués, fémurs antérieurs transversalement subgranulés; fémurs postérieurs beaucoup plus courts que le sommet des élytres. Tarses courts, 1er article des tarses intermédiaires plus court que les 2me et 3me articles réunies; les articles des tarses postérieurs étroits, 3me article profondement bilobé, les lobes étroits, étroitement arrondis sur le sommet, 3me article égal ou tres peu plus long que les 2me et 3me articles réunis.

♀. *Front* avec une impression plus faible, densement et irrégulièrement ruguleusement ponctué, le sillon entre les antennes très large, les tubercules antennifères courts. La gorge densement ruguleusement ponctuée. Antennes un peu plus courtes que le corps. 1er article caréné plus faiblement, 3me article un peu plus long que les 1er et 2me articles réunis, 4me article beaucoup plus court que le 3me, presque aussi long que le 1er article, 4me et 5me articles de la longueur égale, 6me article plus court que le 5me; 11me article plus long que le 10me, courtement appendiculé, l'appendix assez indistinct, antennes distinctement de 11 articles; les articles 3me, 4me et les suivants faiblement épais sur le sommet, un peu prolongés içi extérieurement mais sans une dent apicale; les articles 7me–10me distinctement déprimés dans leur partie apicale. Prosternum rudement et densement ponctué; saillie prosternale large, non attenuée postérieurement, échancrée sur le sommet, avec une tubercule préapicale, moins grande que celle du mâle. Saillie mésosternale très large avec une petite tubercule. Métasternum finement et densement, irrégulièrement ponctué. Abdomen finement mais pas très densement ponctué. Fémurs postérieurs un peu plus longs (ou non) que le sommet du 3me segment abdominal. 3me article des tarses postérieurs un peu plus long que les 2me et 3me articles réunis.

Long. ♂♀ 12–24 mm., larg. 5·5–7·5 mm.

Distribution géographique: Kashmir, Waziristan; Murree, Peshawur, Cambellpore.

Écologie: le mâle de la coll. de Forest Res. Inst. Dehra Dun porte la date: "attaque *Populus ciliata*."

Variabilité. Comme tous les *Purpuricenus* cette espèce est assez variable. Dans ce moment on peut distinguer les formes suivantes:—

(1) Forma typica.—♂. Noir; pronotum avec une grande macule rouge sur le disque, orné latéralement de 1–2 petites macules rouges, parfois isolées, parfois réunies avec la macule discale; élytres avec une grande macule transversale rouge; cette macule postmédiane, n'atteignant un peu de la suture, est prolongée latéralement (le long des épipleures) en avant jusqu'à l'angle huméral.

♀. Noir; pronotum rouge avec son bord basal un peu obscurci, les élytres rouges, noires dans leur tiers apical et sur sa base; les épipleures rouges; prosternum rouge.

(2) **intermedius,** ab. ♂ n.—Noir; pronotum avec une macule discale rouge, sans petites macules latérales; élytres comme chez la forme type, mais la macule postmédiane très étroite, presque lineiforme.—Peshawur (Brit. Mus.).

(3) **gardneri,** ab. ♂ n.—Noir; pronotum avec une macule rouge en forme d'un " V " renversé; élytres avec une petite macule postmédiane rouge (au milieu du disque), les épipleures rouges dans leurs deux tiers premiers.—Murree (Brit. Mus.).

(4) **lockleyi,** ab. ♂ n.—Entièrement noir; pronotum avec une macule annulaire rouge au milieu du disque.—Murree (Brit. Mus.).

(5) **tripartitus,** ab. ♀ n.—Noir: pronotum rouge; élytres avec une bande médiane rouge, très large, un peu plus large que le tiers des élytres; les tiers basal et apical noirs, les épipleures rouges dans ses deux tiers premiers, l'angle huméral et la base étroitement bordés de rouge.—Waziristan (Brit. Mus.).

P. indus est facilement à distinguer de *P. wachanrui*, Levr., 1858 (*haussknechti*, Witte 1871, nec Gah. 1906), d'après les caractères suivants: pronotum fortement et régulièrement ponctué sur le disque, sans rugosités; fortement tuberculé latéralement; front avec la sculpture plus fine et plus faible; antennes du mâle présentaient une structure différente, etc.

THE PROVENTRICULUS IN THE DYTISCIDAE (COL.) AS A TAXONOMIC CHARACTER.

SECOND NOTE.

By FRANK BALFOUR-BROWNE, M.A. (Oxon. et Cantab.), F.R.S.E., F.Z.S., F.R.E.S., P.R.M.S.

(*Formerly Professor of Entomology, Imperial College of Science, London.*)

SINCE my previous note published in this Journal.* I have made a further study of the proventriculus in the DYTISCIDAE and I have come to the conclusion that this organ exhibits a very interesting process of evolution. In my previous description of the structure, I referred to four main lobes and four intermediate ones and I assumed that the main lobes were oval in the lower groups and triangular in the higher, one genus, *Copelatus*, having one subgenus with oval main lobes and the other with triangular ones. I have now come to the conclusion that it is not the lobes which change in form but that the main lobes of the lower groups, specialised for grinding and crushing, are, so to speak, squeezed out in the higher groups by the secondary lobes, specialised as filters, which have enlarged at the expense of the others.

The interest lies in the fact that in the Dytisci Fragmentati the NOTERINAE have the more primitive form while the LACCOPHILINAE have the more advanced, just as, with regard to the post-tarsal claws, the NOTERINAE exhibit the primitive condition of two equal claws while the LACCOPHILINAE have only one claw, like the Cybisterini at the top of the DYTISCINAE. All the HYDROPORINAE exhibit the primitive condition of the proventriculus while, in the COLYMBETINAE, some genera have the grinding apparatus dominant and others have it suppressed. All the DYTISCINAE have the filtering apparatus fully developed.

* 1934, 3 : 241–244.

A NEW AFRICAN SPECIES OF *OPISTHODONTIA* (LEP., LASIOCAMPIDAE)

By W. H. T. Tams, F.R.E.S.

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Opisthodontia **haigi,** sp. n.

♂. Palpus walnut brown, each segment ventrally and distally warm buff to buff yellow. Antenna bone brown. Head with frons buff pink, ochraceous buff laterally, vertex deep brownish drab. Thorax cinnamon drab in front (patagia), tinged with deep brownish drab; posterior two-thirds buff yellow to ochraceous buff, clove brown behind, tegula tinged outwardly with walnut brown and deep brownish drab. Abdomen dorsally clove brown, terminal tuft cinnamon drab. Pectus, venter and legs cinnamon drab tinged with walnut brown, with some deep brownish drab shading. Forewing warm sepia with ochraceous buff suffusion between cell and inner margin, and between vein *R*5 and tornus, tinged with amber brown below the cell, with light buff to buff yellow along inner margin; costa streaked with warm buff; fringe finely edged with blackish brown; a minute blackish brown spot at middle of discocellulars; two series of oblique warm sepia streaks subterminally; veins *R*2 and *R*3 buff yellow from apex to where they anastomose. Hindwing warm sepia, anterior half suffused with ochraceous buff, inner marginal half broadly suffused with deep brownish drab; costa streaked with buff yellow, most noticeable on the accessory veinlets; two series of warm sepia lunules subterminally. Underside walnut brown to warm sepia; forewing light buff along inner margin, hindwing with streaks of light buff to buff yellow between costa and cell, most noticeable on accessory veinlets. Expanse: 43 mm.

Fig. 1.—*Opisthodontia haigi*, sp. n.

Holotype ♂. S. Nigeria; Ikom, 1932 (*E. O. Haig*).

This very striking moth is quite unlike any other species of the genus known to me. The specimen has been generously presented to the British Museum by Mr. Haig.

A NOTE ON HETEROGONY IN THE THYSANOPTERA, WITH DESCRIPTIONS OF TWO NEW SPECIES FROM TANGANYIKA

By J. Douglas Hood, Ph.D.

(Professor of Zoology, University of Rochester, U.S.A.)

It is well known that in a great many different animals belonging to several phyla, certain organs increase in relative size with any increase in the absolute size of the body. Thus, if an animal of a given species is twice as large as another, the organs which show differential growth or heterogony are not merely twice as large, but three or four, or perhaps even several times the size of those of the smaller individual. The long list of known instances of this phenomenon includes such structures as the antlers of deer, the chelae of certain Crustacea, the mandibles, fore legs, antennae, and various chitinous evaginations of insects pertaining to several different orders, the legs of some Acarina, etc. More commonly these organs pertain to the male sex, though this is not necessarily the case.

To the best of the writer's knowledge, no mention has ever been made by entomologists that the great discrepancies in the size of certain structures in the Thysanoptera are the result of such differential growth. The Suborder Tubulifera exhibits it quite generally, but, to a limited degree, it occurs also in the Terebrantia.

The most extreme example is perhaps that of the Panamanian *Gastrothrips proteus*, described by the author in 1934, *J. New York ent. Soc.*, **41** : 417, and illustrated fully in a paper now in the press. In this species the male varies from a small commonplace insect with fore legs of medium size and a thorax of ordinary form, to a grotesque-appearing creature with enormously enlarged fore legs, armed with large setae on the cheeks, and with a pair of heavy pronotal processes set at their tips with five spine-like setae, the processes themselves extending over the meso- and meta-thorax to the very base of the abdomen.

In various ways, though sometimes only slightly, the numerous species of Tubulifera almost always show the effects of heterogonic development: and many names of specific and lower rank, as well as a few generic ones, attest our failure to sense that *such striking differences between individuals are merely the result of environmental factors, and hence non-genetic and without taxonomic value.*

The study of one of the two new species described below has brought the subject forcibly to mind, and the rather full illustrations are presented primarily to invite attention to the phenomenon. The fore legs of the oedymerous male shown in fig. 2, *e* are clearly heterogonic. Fig. 2, *f* illustrates the fore leg of a diminutive gynecoid male, drawn to the same scale. It differs only negligibly from the fore leg of the female shown in fig. 2, *a*. Between these two extremes, to judge from what we find in other genera and species, a series of intergradations would be found in any long series, even if collected in the same locality. *Oedymerism and gynecoidism, then, though convenient descriptive terms, denote not hard and fast groupings of individuals of a species, but merely the opposite ends of a continuous heterogonic series.*

Heterogony is not confined, however, to the male sex. The same type of modification, though less extreme, to be sure, is often exhibited by females. In the species which we have just been discussing, for example, the head and prothorax of an average female is as shown in fig. 2, *a*, while these parts of a

female which shows a distinct approach toward oedymerism is shown in fig. 2, *d*. Both in form and size these structures are intermediate between those illustrated for the males in fig. 2, *e* and *f*.

In insects with a pupal stadium, the organs of the adult are necessarily laid down during a brief period when the organism is no longer taking in food but is dependent for material upon larval tissues and stores previously accumulated in the fat-body. Any surplusage of material over and above that required for the formation of organs necessary to the processes of life and reproduction becomes available for the elaboration of heterogonic organs. Thus the greater the surplus, the larger the heterogonic organs. The ratio between the absolute size of the organism and the size of its heterogonic organs is a

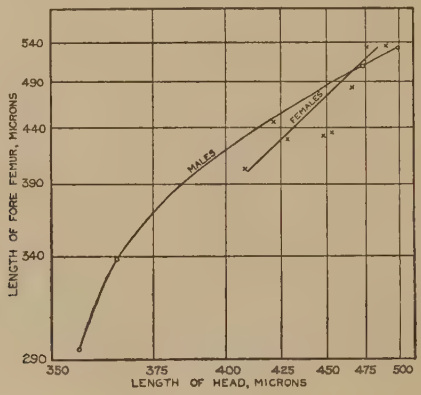

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Fig. 1.—Heterogonic growth of fore femora in *Ecacanthothrips priesneri*, sp. n.—♂♂ (four specimens only) indicated by small circles, ♀♀ (eight specimens) by small x's.

thoroughly constant one, and if these two values for a series of specimens are plotted on a double logarithmic grid, the resulting curve should be a straight line.

Weight or volume are the proper values to be employed for such purposes, but with insects like the Thysanoptera—minute and more than likely to be already mounted on micro-slides—accurate measurements of volume or weight are out of the question. However, the length of the head has been found to express quite accurately the actual size of the specimen; and this measurement can be made with extreme accuracy in well-mounted material. Fig. 1 shows the curves secured by plotting the length of the fore femur—a heterogonic organ—against the length of the head in the limited series of four males and eight females of *Ecacanthothrips priesneri*. These curves are thoroughly typical.

Working with several species in which much longer series are available for study, the same type of curve is secured. The first part of the curve is always a straight line, while its outer end is generally distinctly curved.* Huxley (*Problems of Relative Growth*, 1932) found that in holometabolous insects "this is so for all cases so far investigated, including the mandibles of three species of two genera of stag-beetles, the horns of *Xylotrupes*, the heads of

* The results of these detailed studies will be published elsewhere.

polymorphic neuter ants, etc." His explanation is that during development the heterogonic structures are in competition with other body parts for a share of the limited materials, and, therefore, if the structures are large and consequently more slowly formed, the depletion of the food supply by the rest of the body will cause the heterogonic structures to fall progressively below the expected size from a certain absolute size upwards.

The fundamental significance of this to the taxonomist who is dealing with the Thysanoptera should be emphasised. The statement that such differences in size and proportions are non-genetic, the result of environmental conditions, and of no taxonomic value whatsoever, bears repeating. Extreme care should be exercised lest striking heterogonic characters be used as criteria in the definition of genera as well as species.

Genus *Ecacanthothrips*, Bagnall, 1908.

In structure, as well as in difficulty of specific differentiation, this interesting genus is very suggestive of *Phlaeothrips*, *Acanthothrips*, and *Hoplandrothrips*, and is altogether too closely related to them to permit its separation as the type of a distinct family. With no great success, the writer has since 1915 periodically attempted to synonymise Bagnall's family ECACANTHOTHRIPIDAE with the PHLAEOTHRIPIDAE; but apparently the unique multiplication of sense-cones on the third antennal segment of *Ecacanthothrips* has diverted attention from the virtual identity of the other body-parts in the genera named above. *Eupathithrips*, too, forms with these and a few others a thoroughly compact natural group; and the family EUPATHITHRIPIDAE, Bagnall, is likewise wholly untenable.

Above, in discussing the general subject of heterogony, mention was made of the extreme variability of the fore coxae in males of *Ecacanthothrips priesneri*. Similar variability is to be expected among its congeners, and as this character has been used as a prime one in the definition of species, there can be little doubt that synonymous names exist in the genus. Several species, such as *inermis*, *crassiceps*, *bagnalli*, *inarmatus*, and *coniger*, appear to be thoroughly distinct; but the remainder of the genus, centring about *sanguineus*, requires the careful study of large series of specimens.

The following brief synopsis should aid in orienting the supposed new species (the first to be recorded from the African continent) among those other members of the genus which have the fore femur toothed.

a. Fore femur with tooth at middle of inner surface.
  b. Head 1·3 times as long as wide . . . . . *crassiceps*, Karny.
  bb. Head much longer.
    c. Middle and hind tibiae predominantly yellow . . *flavipes*, Bagnall and *bryanti*, Bagnall.
    cc. Middle and hind tibiae predominantly blackish-brown.
      d. Antennae with segments V and VI yellow at base *sanguineus*, Bagnall and *coxalis*, Bagnall.
      dd. Antennae with segments V and VI not yellow at base.
        e. Fore tibiae dark, only slightly paler along middle; antennal segments III–V measuring about 123, 132, and 126 μ, respectively. . . . . *steinskyi*, Schmutz.
        ee. Fore tibiae yellow, clouded with brown at base and more or less along outer and inner surfaces; antennal segments III–V measuring about 140, 147, and 144 μ, respectively *priesneri*, sp. n.

Ecacanthothrips priesneri, sp. n.

(Fig. 2, *a–f*.)

♀ (macropterous).—Length about 2·8 mm. (distended, about 3·8 mm.). *Colour* brown to blackish-brown in fully matured individuals, with an abundant, bright red, fat-body pigmentation which is especially conspicuous in teneral individuals; all femora blackish-brown; middle and hind tibiae just paler than femora, narrowly tipped with yellowish, perceptibly lightened at base; fore tibiae yellow, clouded with brown at base, and more or less along outer and inner surfaces; all tarsi yellow, shaded with brown; antennae with segments I and II nearly concolorous with head, I somewhat paler basally; III darkest (nearly black) along inner surface, brown elsewhere, save only the extreme base of pedicel and an area at middle of outer surface, which are yellow, the sense-cones brown; IV nearly concolorous with I and II, darkest at base and along inner and outer surfaces; V–VIII brown, paler than IV, but none of them yellow or yellowish in any part, V darkest at extreme base, V and VI paler in basal third or two-fifths; tube paler in distal half; fore-wings lightly edged with brown, except at base, and with a post-median pale brown streak extending from the third subbasal seta to middle of wing; hind-wings with a median brown line extending to near tip, this line broadened in distal two-fifths of wing to involve nearly all of its posterior half.

Head (fig. 2, *a*) long, about 1·76 times its greatest width (which is across cheeks), narrowest near base, its form and chaetotaxy accurately shown in figure, its occipital region somewhat elevated along median line; dorsal surface with the anastomosing lines indistinct, not forming polygonal reticles, but faintly asperate; vertex conical, with a median carina anterior to median ocellus, the latter slightly overhanging; postocular setae about 120 μ in length, somewhat shorter than eyes, about 174 μ apart at their bases. *Eyes* of normal form and structure, slightly wider than their interval. *Ocelli* anterior in position and approximate, the diameter of the posterior pair greater than their interval and about equal to their distance from anterior ocellus. *Antennae* (fig. 2, *b*) of normal form and structure; segment III (fig. 2, *c*) with 20–26 stout sense-cones, those on the ventral surface usually arranged in two more or less definite transverse rows; sense-cones on IV 2–2, V and VI 1–1 + 1, VII 1 dorsal; V slightly, and IV distinctly, longer than, III, this last about 140 μ. *Prothorax* (fig. 2, *a*) across coxae about 2·67 times the median length of pronotum, the latter about 0·46 the length of head, with partial median apodeme and thickened front margin, its surface subreticulate with anastomosing lines; major setae all present, brown, dilated at tip, anterior marginals 62 μ, anterior laterals 90 μ, midlaterals 63 μ, epimerals 117 μ, posterior marginals 177 μ; three or four coxal setae, of which the most anterior is dilated at tip and about 70 μ long, the others shorter and pointed. *Legs* normal for the genus, the fore pair (figs. 2, *a* and 2, *d*) enlarged; fore femora with a strong tooth at middle, fore tibiae with about four teeth in distal half of inner surface, fore tarsi strongly toothed, fore coxae occasionally produced laterally and subconical (fig. 2, *d*); middle and hind femora with several strong dark setae forming a row along outer (morphologically the upper) surface. *Wings* of fore pair of normal form (*i.e.* broader in basal than in distal half, distinctly narrowed at tip, and somewhat constricted at middle, where the membrane is pocketed upward), and with 20–26 accessory setae; subbasal setae pale yellowish, dilated apically, the distal one about 125 μ and longest. *Abdomen* of normal form and structure, about equal in width to prothorax across coxae, broadest in segments II and III; major setae on I–VIII dilated apically, dorsal pair on IX nearly or quite pointed and 200 μ in length, lateral pair somewhat longer; tube slightly more than half as long as head, shorter than its longest terminal setae, more than twice as long as its greatest subbasal width (which is twice the apical width), its sides straight.

Drawn by Mrs. Philip T. Bassett (Helen E. Rearwin); camera lucida.

Ecacanthothrips priesneri, sp. n.

FIG. 2.—*a*, Head and prothorax, ♀, paratype; setae omitted from antennae: *b*, Right antenna, ♀, holotype; *c*, Segment III of right antenna, ♀, holotype; *d*, Right fore leg, ♀, paratype, oedymerous form; *e*, Head and prothorax, ♂, paratype, oedymerous form; setae omitted from antennae; *f*, Left fore leg, ♂, morphotype of gynecoid form.

Measurements of ♀ (paratype): Length about 2·84 mm. (distended, about 3·83 mm.); head, length 0·454 mm., width across eyes 0·241 mm., width across middle of cheeks (exclusive of tubercles) 0·258 mm., least width near base 0·232 mm.; eyes, length 0·133 mm., width 0·083 mm., interval 0·075 mm.; ocelli of posterior pair, diameter 0·035 mm., interval 0·026 mm., distance from anterior ocellus 0·032 mm.; prothorax, median length of pronotum 0·211 mm., width (inclusive of coxae) 0·564 mm.; pterothorax, width 0·543 mm.; abdomen, width 0·560 mm.; tube (segment X only), length 0·234 mm., width at base 0·110 mm., width at apex 0·054 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ):	80	82	140	147	144	110	84	57
Width (μ):	61	47	77	60	43	33	30	18

Total length of antenna 0·844 mm.

♂ (macropterous), *oedymerous form*.—Length about 2·9 mm. (distended, about 4 mm.). Colour as in female. *Head* (fig. 2, *e*) relatively longer and more slender, about 2·12 times as long as wide; postocular setae about 137 μ long and 158 μ apart; setae on cheeks longer and stronger, a pair lateral to postoculars longest and dilated apically; antennae essentially as in female, but longer, segments III–V measuring respectively 148, 157, and 152 μ; segment III with 16–21 sense-cones disposed essentially in a single encircling whorl.

Prothorax (fig. 2, *e*) much enlarged, its breadth across coxae nearly three times the median length of pronotum, the latter nearly 0·6 the length of head, with a complete median apodeme and anterior margin considerably thickened; anterior marginal setae slender, pointed, about 43 μ long; other setae dilated at apex and about as in female, the anterior laterals 125 μ, midlaterals 65 μ, epimerals 113 μ, posterior marginals 172 μ. *Fore legs*, especially the femora and coxae, greatly enlarged, their structure well shown in fig. 2, *e*; fore femora with outer surface excavated basally and with the long fringing hairs absent from distal two-fifths. *Fore-wings* with 26–29 accessory setae. *Abdomen* more slender than in female; setae about as in female, except that the dorsal pair on IX are 238 μ, and the lateral pair 70 μ; tube 0·44 as long as head.

Measurements of ♂ (allotype): Length about 2·94 mm. (distended, about 3·98 mm.); head, length 0·500 mm., width across eyes 0·234 mm., width across middle of cheeks (exclusive of tubercles) 0·235 mm., least width near base 0·202 mm.; eyes, length 0·133 mm., with 0·082 mm., interval 0·069 mm.; posterior ocelli, diameter 0·33 mm., interval 0·024 mm., distance from anterior ocellus 0·030 mm.; prothorax, median length of pronotum 0·294 mm., width (inclusive of coxae) 0·876 mm.; pterothorax, width 0·595 mm.; abdomen, width 0·498 mm.; tube (segment X only), length 0·221 mm., width at base 0·114 mm., width at apex 0·054 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ):	83	82	148	157	152	117	92	59
Width (μ):	59	50	85	62	45	32	27	16

Total length of antenna 0·890 mm.

♂ (macropterous), *gynecoid form*.—Length about 2·17 mm. (distended, about 2·9 mm.). Much like female, save for the smaller size. Fore legs (fig. 2, *f*) not enlarged, fore coxae not produced laterally, fore femora not excavated on outer surface nor with the long fringing hairs found in the oedymerous form; antennal segment III with 11–14 sense-cones only.

Tanganyika Territory: Amani. Described from 8 ♀♀, 2 oedymerous ♂♂, and 2 gynecoid ♂♂, 25 and 27.i.1928 (*Dr. C. B. Williams*), on dead branches [Hood Nos. 460 and 461]. Types in the author's collection.

It is named after Dr. Hermann Priesner, who, after studying one of the specimens, expressed the belief that it represents "a distinct new species" because of the yellow fore tibiae and the longer antennal segments.

Phlaeothrips **poecilus**, sp. n.

(Fig. 3, *a* and *b*.)

♀ (macropterous).—Length about 1·6 mm. (distended, about 2·2 mm. *Colour* yellow, with brown or grey-brown markings: head yellow at base and at sides, light brown in the area limited by antennal bases, inner margins of eyes, bases of postocular setae, and a median point midway the latter and base of head, its ventral coloration similar; prothorax yellow, but with a brownish cast in mounted specimens because of the brown mouth-cone and fore coxae; pterothorax yellow, with a brown lateral spot above the middle coxae and another in front of hind coxae, both pairs of coxae brown; mesonotum with a brown cloud across middle and at sides; abdomen yellow, with a pair of brown spots occupying the stigmatal area on segment I and the adjoining portion of II; III–V each with a basal encircling ring of brown, which is broadest at sides of body and there nearly equal in width to antenna, and is interrupted both dorsally and ventrally in about median fourth of segment; VI, in the holotype, with a pair of dorsal sublateral brown spots directly above a similar pair of ventral spots, these spots less distinct in the other specimens; VII largely brownish, darkest at posterior angles; VIII and IX yellow, dorsum of latter with a grey cloud in its posterior and median portions; tube yellow, more deeply so in basal half, tipped with grey, and with its basal thickening darkened; femora yellow, fore pair shaded with brown along inner surface, the middle and hind pairs shaded with brown in about distal fourth but with their extreme tips colourless; fore tibiae yellow, paler apically, their tarsi pale yellowish, middle and hind tibiae and tarsi colourless, save only the usual brown tarsal cups; antennae with segments I–III pale buff, II very lightly shaded with grey or brown in distal portion, III more darkly and irregularly so, IV–VIII nearly uniform blackish-brown; wings of fore pair grey-brown basally and in anal area (or "scale"), paler in the region of the third subbasal seta, dark again beyond, paling gradually to the colourless apex, the darker middle portion with a narrow post-median pale line; ocellar pigmentation red, fat-body pigmentation not evident.

Head (fig. 3, *a*) about 1·2 times as long as greatest width, broadest just behind eyes, narrowed basally, the cheeks subparallel in distal half, except where they curve abruptly to eyes, the width across the latter less than 0·9 the greatest width of head and somewhat less than the least subbasal width; surface distinctly but not conspicuously polygonally reticulate; vertex evenly rounded, not at all produced or overhanging; postocular setae 52 μ, 113 μ apart at bases, strongly dilated at apex, brown throughout. *Eyes* rounded, finely facetted, scarcely one-third the length of head, very slightly wider than their interval. *Ocelli* close together, the median one decidedly behind a line tangent to front margin of eyes, posterior pair about 20 μ in diameter, 25 μ apart, 23 μ from median ocellus. *Antennae* about 1·6 times as long as head, form and chaetotaxy well shown in fig. 3, *b*; sense-cones on inner (outer) surfaces of segments as follows: III 1(2), IV 2(2), VI (1^{+1}), VII (1^{+1}), VII with one on dorsum. *Mouth-cone* slender, acute, surpassing base of prosternum. *Prothorax* (fig. 3, *a*) along median dorsal line about 0·57 as long as head and (inclusive of coxae) about 2·23 times as wide as long, without median apodeme; surface smooth, epimeron not fused with pronotum; major setae all present, brown in colour, their broadly dilated tips darker, their lengths in microns as follows: anterior marginals 41–47, anterior laterals 53–58, midlaterals 41–50, epimerals 52–57, posterior marginals 47–56, coxals 34–36. *Fore tarsus* with a distinct tooth at base, femora and tibiae unarmed. *Wings* not narrowed at middle, fore pair usually with 9, rarely with 11, accessory setae; sub-

basal setae three in number, subequal, similar in form to prothoracic setae. *Pterothorax* less than 1·1 times as wide as prothorax across coxae. *Abdomen* slender, scarcely as broad as prothorax across coxae, with asperate anastomosing lines of sculpture at sides of terga; posterior pair of sigmoid wing-retaining setae on II–VI much stouter than anterior pair, the two pairs of dorsolateral setae on III–VIII, and the single pair on I and II, dilated apically, the lateral pair on IX 100 μ and pointed, dorsal pair on IX 81 μ and slightly broadened at apex. *Tube* nearly 0·6 the length of head and nearly 2·5 times its greatest subbasal width, the latter nearly 1·9 times the apical width, sides almost perfectly straight; terminal setae light brown, 210 μ, much longer than tube.

Measurements of ♀ (holotype), in mm.: Length about 1·64 (distended, 2·17); head, length 0·270, greatest width (across cheeks) 0·224, width across eyes 0·195, least width near base 0·199; eyes, length 0·087, width 0·065, interval 0·063; prothorax, median length of pronotum 0·152, width (inclusive of coxae) 0·339; pterothorax, width 0·364;

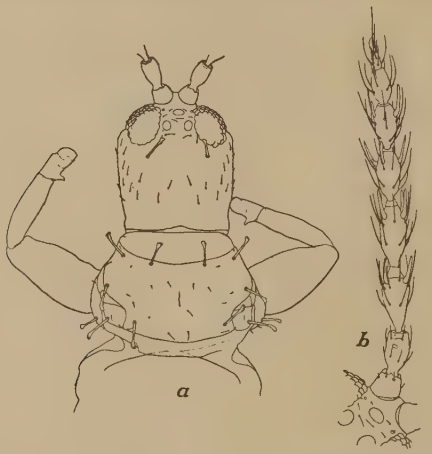


Fig. 3.—*Phlaeothrips poecilus*, sp. n.—*a*, head and prothorax, ♀, holotype; setae omitted from appendages. *b*, left antenna, ♀, paratype.

abdomen, width 0·332; segment X (tube), length 0·157, width near base 0·064, at apex 0·034.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ):	45	63	78	80	63	60	49	31
Width (μ):	40	33	37	35	32	30	27	12

Total length of antenna 0·469 mm.

♂ (macropterous).—Length about 1·4 mm. (distended, about 1·8 mm.). *Colour* as in female, excepting that the abdominal markings are smaller and paler, with the subbasal bands on segments III–V so reduced as to extend only slightly on to dorsal and ventral surfaces; fat-body pigmentation more evident, brownish-orange in colour, one specimen with slight crimson pigmentation at side of abdomen near base. *Head* more narrowed basally, where it is less than 0·9 the width across eyes. *Fore tarsus* with tooth as in female. *Fore-wings* usually with 7 or 8, rarely with 9, accessory setae.

Measurements of ♂ (allotype) in mm.: Head, length 0·224, greatest width (across cheeks) 0·182, width across eyes 0·168, least width near base 0·145; postocular setae, length 0·047, interval 0·103; prothorax, median length of pronotum 0·121, width (inclusive

of coxae) 0·277; prothoracic setae: anterior marginals 0·040, anterior laterals 0·050, midlaterals 0·040, epimerals 0·050, posterior marginals 0·048, coxals 0·027; pterothorax, width 0·284; abdomen, width 0·238; segment X (tube), length 0·132, width near base 0·053, at apex 0·030.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ):	37	55	71	78	62	57	47	30
Width (μ):	34	27	31	30	27	27	24	11

Total length of antenna 0·437 mm.

Tanganyika Territory: Amani. Described from 3 ♀♀ and 4 ♂♂, 15.vii., and 25.x., 1927, and 25.i.1928 (*Dr. C. B. Williams*), on dead branches lying on ground [Hood Nos. 455, 457, and 461]. Types in the author's collection.

The coloration of this species is thoroughly distinctive. The specimens are mature, and the pale colour is not due to long preservation in alcohol. In some ways, the species suggests *Trichothrips*; but the long, pointed mouth-cone, sculptured head, short setae, slender abdomen, and certain details of antennal structure are characteristic of *Phlaeothrips*.

KEYS TO SOME INDIAN GENERA OF CARABIDAE (COL.). V. THE GENERA *CYMINDOIDEA*, *PLATYTARUS*, AND *TARIDIUS*

By H. E. Andrewes, F.R.E.S.

These three genera, nearly related to each other, and not far removed from the genus *Cymindis*, were dealt with by Chaudoir in his "Genres aberrants du groupe des Cymindides" (1875, *Bull. Mosc.*, **1875** (2) : 1–61), and may conveniently be treated together here. No new species of *Cymindoidea* have come to light in recent years, but two new species are here added to each of the other two genera, and descriptions of them will be found below.

The species described by Redtenbacher in Hügel's Kaschmir (1844, **4** (2) : 499, pl. 23, fig. 3) as *Cymindis quadrimaculata* has appeared in recent catalogues under the genus *Cymindoidea*. I have not seen the type, which is in the Vienna Museum, and Dr. Holdhaus informs me that it is a wreck, but undoubtedly a true *Cymindis*, so that it is omitted here.

I am most grateful to Dr. Holdhaus for his help, and also to Prof. De Beaux and Dr. Capra for sending me the types of two of Bates' species from the Genoa Museum.

Key to the Genera.

1(4). Head densely longitudinally striate; apical joint of labial palpi securiform.

2(3). Prothorax with its base only slightly produced at middle, so that the margin is arcuate; elytral intervals generally flat, the odd ones sometimes a little raised; underside, femora, and basal joint of antennae more or less smooth, though sometimes finely punctate . *Cymindoidea*.*

3(2). Prothorax with its base strongly produced at middle, an angle on each side between the central and lateral parts; elytral interval 7 always and all the other odd intervals often carinate; underside, femora, and basal joint of antennae more or less granulate . . . . *Platytarus*.†

* *Cymindoidea*, Castelnau, 1832, *Ann. Soc. ent. Fr.*, **1** : 390.

† *Platytarus*, Fairmaire, 1850, *Bull. Soc. ent. Fr.*, (2) **8** : 17.

4(1). Head with from one to six fine carinae on each side, vertex and middle of front comparatively smooth; apical joint of labial palpi subcylindrical . . . . . *Taridius.**

Cymindoidea.

Key to the Species.

1(4). Surface of the elytra closely, rather coarsely, and confluently punctate; colour black, the elytra with a ferruginous zigzag patch on the disk just before middle.

2(3). Genae projecting laterally as far as eyes; elytral intervals flat and similar. Length about 12–13 mm. (India, Burma) *indica*, Schm. Goeb.†

3(2). Genae not projecting laterally as far as eyes; odd elytral intervals raised, with a minute irregular carina down the middle of each. Length 9 mm. (North India) . . . . . *distigma*, Chaud.‡

4(1). Surface of the elytra smooth, at most with some fine, sparse punctures; colour black, the elytra without discal, though sometimes with a ferruginous humeral spot.

5(8). Elytra with a ferruginous humeral spot (sometimes obsolete in *aequa*), intervals impunctate; legs pale ferruginous.

6(7). Head with distinct puncturation showing among the longitudinal striae; elytra with rounded shoulders and flat intervals. Length about 11·5 mm. (Madras, Mysore) . . . . . *aequa*, Andr.§

7(6). Head without punctures among the striae; elytra with the shoulders subangulate, the intervals evidently though not strongly convex. Length 6–7 mm. (Nilgiri Hills, Ceylon). . . . . *manda*, Andr.‖

8(5). Elytra uniformly black, intervals finely and sparsely punctate; legs brownish. Length 6·5 mm. (Coromandel, Nilgiri Hills) . *nigra* Chaud.¶

Platytarus.

Key to the Species.

1(4). Median line of the prothorax comparatively narrow ; elytral intervals 1, 3, and 5 raised but not carinate.

2(3). Median line of the prothorax very fine; elytral intervals 1, 3, and 5 only slightly raised, 7 finely carinate; shoulders of elytra nearly always covered by a reddish patch. Length about 7 mm. (India, Ceylon, Burma, Indo-China, Waziristan, Irak) . . . . . *boysi*, Chaud.**

3(2). Median line of the prothorax narrowly sulcate; elytral intervals 1, 3, and 5 moderately convex, 7 distinctly carinate; upper surface uniformly black. Length 8·5 mm. (Burma) . . . . . *planulatus*, Bates.††

4(1). Median line of the prothorax forming a deep and fairly wide sulcus; elytral intervals 1, 3, and 5 carinate.

5(8). Prothorax with its front angles neither acute nor projecting far forward, its sides only slightly reflexed; elytral striae with inconspicuous punctures.

* *Taridius*, Chaudoir, 1875, *Bull. Mosc.*, **1875** (2) : 7.
† 1846, *Faun. Col. Birm.* : 31.
‡ 1875, *Bull. Mosc.*, **1875** (2) : 15.
§ 1923, *Ann. Mag. nat. Hist.*, (9), **12** : 451.
‖ 1923, *Spol. Zeylan.*, **12** : 247.
¶ 1875, *Bull. Mosc.*, **1875** (2) : 19.
** 1850, *Bull. Mosc.*, **1850** (1) : 50.
†† 1892, *Ann. Mus. civ. Genova*, **32** : 417.

6(7). Genae projecting beyond eyes; prothorax as long as wide, its front angles projecting a little, but rounded, the hind angles projecting laterally. Length 9 mm. (North India) . . . . . *bucculentus*, sp. n.

7(6). Genae not projecting beyond eyes; prothorax longer than wide, its front angles hardly projecting, but moderately sharp, the hind angles not projecting laterally. Length 7–8 mm. (India) . . . *porcatus*, Andr.*

8(5). Prothorax with its front angles acute and projecting forward, its sides distinctly reflexed; elytral striae with fairly conspicuous punctures. Length 8·5 mm. (North India?) . . . . . *dicraeus*, sp. n.

Platytarus **bucculentus**, sp. n.

Length, 9 mm.

Black: buccal organs, legs, and (very faintly) lateral borders of both prothorax and elytra dark reddish. Surface dull.

Head flat, with flat eyes, genae dilated, longer than eyes, and projecting beyond them, both covered with short erect hairs, neck slightly constricted, antennae stout, extending a little beyond base of prothorax, paragenae porrect, conspicuous from above, rounded at apex, surface densely longitudinally striate, neck punctate. *Prothorax* flat, cordate, a fifth wider than head, as long as wide, widest just behind front angles, base a little narrower than apex, strongly produced at middle, apex emarginate, sides bisetose, border denticulate, lightly and widely reflexed, gently rounded to hind angles, which project laterally on each side as a small sharp tooth, front angles projecting slightly forward and moderately rounded, minutely setulose; median line deep and wide, wider at extremities, its outer margin on each side cariniform, surface finely and densely rugose-punctate. *Elytra* flat, subovate, twice as wide as prothorax, three-fourths longer than wide, widest a little behind middle, base deeply emarginate at middle to receive the produced part of the base of prothorax, apex truncate and bi-emarginate, lateral border denticulate; striae fine, finely punctate, intervals 1, 3, 5, and 7 carinate, the carina on 7 interrupted just behind middle, the two parts of which it is formed overlapping, the front part pushed outwards, so that it is placed just outside stria 7, surface very finely and inconspicuously rugose-punctate. Beneath the prosternum is granulate, the rest of the underside finely punctate; claws indistinctly denticulate at base.

United Provinces: Dehra Dun (*G. D. Pant*), 1 ex., formerly in the Forest Research Institute, now in the British Museum.

Platytarus **dicraeus**, sp. n.

Length, 8·5 mm.

Black, dull: buccal organs, antennae, and legs ferruginous.

Head flat, with flat eyes, covered with short erect hairs, genae as long as eyes, but not projecting beyond them, neck slightly constricted, antennae extending well beyond base of prothorax, paragenae visible from above, though not conspicuous, surface finely and densely strigose, neck finely rugose-punctate. *Prothorax* rather flat, a little wider than head and a little longer than wide, widest a little before middle, base rather narrower than apex, strongly produced at middle, apex emarginate, the front angles acute, projecting forward as two fairly sharp points, sides gently rounded, rather strongly reflexed, border finely and irregularly denticulate, hind angles rather small, rectangular; median line and surface as in *bucculentus*, but the former is of approximately equal width throughout. *Elytra* differing little from those of *bucculentus*, but a little less than two-thirds longer than wide, the outer angle of the apical truncature moderately sharp, though obtuse, the striae, and especially the punctures in them a little more evident, the interruption of the carina on interval 7 at about a third from base. Claws with about three small teeth on each side at about middle.

* 1923, *Ann. Mag. nat. Hist.*, (9), **12**: 452.

India(?) (*Capt. Boys*). A solitary example in the Hope Department of the Oxford University Museum. There is no locality label, but it is understood, and my own experience tends to confirm this, that Museum specimens bearing Capt. Boys' name, were all taken in North India, many of them certainly in the neighbourhood of Simla. The specimen is an old one, and I regret that I cannot describe it a little more fully.

Taridius.

Key to the Species.

1(4). Head with at least five fine lateral carinae on each side. Length not less than 9 mm.
2(3). Prothorax with two lateral setae on each side in front; elytra uniformly piceous. Length 10–10·5 mm. (North India, Burma) *opaculus*, Chaud.*
3(2). Prothorax with one lateral seta on each side in front; elytra piceous, with a ferruginous pattern consisting of a large comma-shaped humeral patch and the apical fifth, the two patches united along the margin. Length 9 mm. (Burma) . . . . . *birmanicus*, Bates.†
4(1). Head with not more than three fine lateral carinae on each side. Length not exceeding 8 mm.
5(8). Upper surface a little dull, elytra black with a conspicuous flavous pattern, rather similar to that of *birmanicus*. Average length 7·5 mm.
6(7). Genae inconspicuous, their outline straight; elytra with two dorsal pores on interval 3, the humeral and apical flavous patches on the elytra either joining along intervals 6–7, or only narrowly separated. (North India) . . . . . *stevensi*, Andr.‡
7(6). Genae conspicuous, their outline curved; elytra with about half-a-dozen pores on interval 3, and a similar number on interval 5, the two flavous patches on the elytra widely separated. (Nilgiri Hills) . *nilgiricus*, sp. n.
8(5). Upper surface uniformly black, shiny. Average length 6·5 mm. (South India) . . . . . *niger*, sp. n.

Taridius **nilgiricus**, sp. n.

Length, 6·75–8 mm.; *width*, 2·4–3 mm.

Black, moderately shiny: antennae, palpi, legs, pro- and epipleura, and metasternum ferruginous, elytra with a flavous pattern. On the elytra interval 9 is flavous throughout, and the pattern consists of a basal spot on intervals 5–7, which turns abruptly inwards at basal third and reaches stria 1, and an apical marking covering approximately the apical fifth, the front margin of which runs irregularly forward to stria 9, but interval 1 is black nearly to apex.

Head convex, smooth, with one or two minute scattered punctures, two fine ridges on each side near eyes, and a third shorter outer one in front of eyes, but only the middle ridge is well developed, eyes fairly prominent, genae continuing their outline behind and contracting sharply to neck, which is slightly constricted, antennae reaching well beyond base of elytra. *Prothorax* convex, cordate, a fourth wider than head, two-thirds wider than long, base arcuate, rather wider than apex, front angles rounded and setulose, sides bisetose, reflexed, well rounded in front and then straight to the hind angles, which are reflexed, sharp and obtuse; median line, at middle only, and transverse impressions all

* 1875, *Bull. Mosc.*, **1875** (2) : 8.
† 1892, *Ann. Mus. civ. Genova*, **32** : 416.
‡ 1923, *Ann. Mag. nat. Hist.*, (9), **12** : 689.

moderately deep, surface nearly smooth, with some vague cross-striation, basal area and lateral margins subrugose. *Elytra* rather flat, quite a half wider than prothorax, nearly three-fifths longer than wide, widest just behind middle, base emarginate, shoulders square, setulose, apex on each side obliquely truncate, but hardly emarginate, the outer angles rounded; striae vaguely and minutely crenulate, intervals a little convex, 3 and 5 each with about half a dozen pores, with an irregular pore here and there on several of the other intervals. Microsculpture conspicuous, isodiametric on the head and elytra, the meshes on the prothorax a little transverse. Underside smooth, the prosternal process setulose on the declivity, the metepisterna a half longer than wide, last ventral segment (♀) with two setae on each side, claws pectinate.

Nilgiri Hills (*H. L. Andrewes* and *G. F. Hampson*). 4 ex. ♀♀. Type and two cotypes in my collection: a cotype in the British Museum. One of the specimens was taken at 6000 feet, among dead leaves. In two examples the striae are finer, the intervals only slightly raised, and the dorsal pores much reduced.

Taridius **niger**, sp. n.

Length, 6–7·5 mm.; *width*, 2·2–2·8 mm.

Black, shiny: buccal organs, antennae, legs, and to some extent epipleura ferruginous.

Head convex, smooth, a fine ridge on each side close to eye and two short subsidiary ridges on each side of it in front, eyes fairly prominent, genae oblique, shorter than eyes, neck unconstricted, antennae extending rather beyond base of elytra. *Prothorax* convex, cordate, a fifth wider than head, a little less than a third wider than long, base arcuate, as wide as apex, front angles slightly rounded and setulose, sides bisetose, reflexed, rounded in front, gently sinuate before the hind angles, which are a little reflexed, and slightly obtuse and rounded; median line, at middle only, transverse impressions, and basal foveae all moderately deep, surface with a few fine scattered punctures, basal area and sides vaguely and very finely rugose-striate. *Elytra* subovate, moderately convex, about three-fifths wider than prothorax and a fourth longer than wide, widest at apical third, shoulders evident, though rounded, setulose, apex obliquely truncate on each side, the outer angles rounded; striae clearly cut, though not very deep, finely crenulate, intervals slightly convex, dorsal pores very inconspicuous, 2 or 3 generally visible on interval 3 and an occasional pore elsewhere, surface with some almost invisible scattered puncturation. Microsculpture of the elytra isodiametric and very distinct; on the prothorax the meshes are strongly transverse, and on the head barely visible. Underside with some fine scattered punctures; prosternal declivity setulose; metepisterna nearly a half longer than wide; apical ventral segment ♂ with one seta, ♀ with two setae on each side; claws pectinate.

Madras: Palni Hills, Kodaikanal, 7000 feet (*S. W. Kemp*, *T. V. Campbell*, and *P. Newton*); Shembaganur; Madura. Type in my collection: cotypes in the Indian Museum, Calcutta, the Agricultural Research Institute, Pusa, and the Hungarian National Museum, Buda-Pest.

NEW SOUTH AMERICAN MELOLONTHIDS (COL.)

By Lawrence W. Saylor.

(*University of California.*)

Among some material from the British Museum, kindly lent by Mr. G. J. Arrow, the following new species have been found.

Lachnosterna (*Phytalus*) **arrowi,** sp. n.

Holotype ♂. Elongate-oval, a little widened behind, dark castaneous, shining, glabrous. Clypeus short, apex narrowly emarginate, angles very broadly rounded, surface coarsely sparsely punctured. Front punctured as in clypeus, but somewhat denser. Prothorax coarsely, moderately densely punctured, sides very obtusely subangulate, hind angles almost rectangular, front angles very obtuse, margin entire along sides, front margin thickened. Elytra very rugosely punctured, with traces of two striae, a very faint pruinose bloom near the suture. Pygidium shining, glabrous, moderately densely, coarsely punctured. Abdomen glabrous and widely shallowly concave at middle, the fifth segment a little rugose in apical half, the sixth flattened. Hind tibial spurs with one fixed, one-half the length of the other and straight. Claws cleft, upper division shorter and much more slender than the lower. Antennae nine-segmented, rufo-testaceous, club a little lighter in colour and a little longer than funicle.

Length, 17–18 mm.; width, 9 mm.

Brazil: Minas Geraes. The type and one paratype in the British Museum. The paratype unlike the holotype has the fixed spur slightly curved. This species is related to *L. paraguayensis*, but the latter is smaller, has the apical tooth longer, the male antennal club subequal to funicle, and the middle of the clypeus smooth.

Lachnosterna (*Phytalus*) **uruguayana,** sp. n.

Holotype ♂. Rufo-fuscous, shining, thorax and elytra glabrous. Clypeus coarsely punctured, apex reflexed and narrowly emarginate, angles broadly rounded. Front coarsely, closely, variolately punctured, with erect long hair. Prothorax coarsely, sparsely umbilicately punctured, the punctures separated by one to four times their diameter, sides almost rounded, hind angles obtusely angulate, front angles very obtuse, sides not crenulate. Elytra coarsely rugose, moderately densely punctured, obsoletely bi-costate. Pygidium flattened in apical three-fourths, polished, glabrous, basal half somewhat densely punctured, in apical half impunctate, but just before the apex subrugose, apex ciliate. Abdomen widely shallowly punctured at middle, the fifth segment long, rugose in apical half, the sixth segment a little convex, one-half as long as the fifth, with long hairs. Hind tibial spurs with one fixed, short and slightly curved, one-third the length of the free spur. Claws cleft, the lower spur much shorter than upper.

Length, 17 mm.

The unique type from Uruguay: Monte Video, is in the British Museum. It is related to *luridipennis*, Moser, from Columbia, but among other things differs in the entire thoracic sides, the different type of pygidial puncturation and the smaller size.

Lachnosterna (*Phytalus*) **bahiana,** sp. n.

Holotype ♂. Rufo-castaneous, head and thorax more rufous, shining, glabrous. Clypeus short, narrowly angularly emarginate at apex, the latter reflexed, angles very broadly rounded, surface coarsely sparsely punctured. Front densely coarsely punctured. Prothorax moderately coarsely punctured, the punctures separated by one to four times their diameter, a little sparser at sides, wider behind than in front, hind angles almost rectangular, front angles very obtuse. Elytra coarsely sparsely punctured, slightly rugose, bi-costate. Pygidium glabrous, rugose at base, polished, densely moderately finely punctured. Abdomen polished, glabrous at middle, the middle broadly shallowly concave, the fifth segment with a few dozen small tubercles in apical two-thirds, the sixth faintly transversely sulcate. Hind tibiae with the extremely large fixed spur about twice as long as the first tarsal joint, the spur strongly curved near the apex towards the inside; free spur about as long as the first tarsal segment. Claws cleft, upper division a little shorter than the lower and less wide. Antennae nine-segmented, rufous, club testaceous and a little longer than funicle, segments three and four a little elongate and cylindrical.

Length, 20 mm.; width, 10·5 mm.

The type and paratype, from Brazil: Bahia (*Alexander Fry*), are in the British Museum. This species is nearest to *arrowi*, but differs especially in the form of the male fixed spur. It is not closely related to any other species.

NEW SPECIES OF *TRICHILLUM* (COL.: COPRIDAE)

By Lawrence W. Saylor.

(*University of California.*)

The following three species were all collected by Mr. Alberto Schultze at Horqueta, Paraguay. The author wishes to thank Mr. G. J. Arrow and Mr. A. Boucomont for comparing the types of the three species described below with the types of their own respective species. All types are in the author's collection.

Trichillum **minutum,** sp. n.

Rufo-fuscous, shining, almost oval. Head with front coarsely, shallowly, rather densely punctured, the punctures separated by a distance equal to one to three times their diameter near clypeal base, vertex more closely punctured; clypeus without transverse carina, coarsely sparsely punctured, apex with two very acute teeth, one each side of the emargination, the latter the shape of a shallow U, the teeth separated by a distance equal to slightly more than the width of each eye; sides of clypeus and ocular lobes almost contiguous, merely very faintly emarginate at their junction; the front and clypeus with a few widely scattered erect yellow bristles. Thorax entirely punctured from side to side, with one type of punctures only, the latter much sparser at centre of disc, denser at sides, the disc with a few scattered erect yellow bristles; front angles acute and produced, hind angles obliterated and the margin very broadly rounded. Elytral striae finely punctured, intervals flat, seemingly impunctate, with the intervals, exclusive of the second, with a single row of scattered sparse erect yellow bristles, especially in apical half. Pygidium very sparsely punctured, with a few erect bristles. Abdomen with sutures obliterated at middle, surface very coarsely, quite shallowly, densely punctured. Metasternum very finely sparsely regularly punctured over the middle, with a few much more coarse punctures at the apical margin beside the hind coxae.

Length, 2·2 mm.

The extremely small size will readily separate the unique type from any of the others; it approaches none of the described species in the characters of the head and thorax.

Trichillum **arrowi,** sp. n.

Rufo-fuscous, oblong-oval, strongly shining. Head with front and clypeus very strongly densely punctured over the entire surface, with large and small punctures intermixed, with several erect and sparse yellow bristles; clypeus not carinate, apex with two sharp very acute teeth, one each side of a broad U-shaped emargination, the teeth separated at apex by a distance equal to about twice the width of each eye, the ocular lobes and sides of clypeus contiguous, the margin slightly emarginate at the outer base of each of the apical teeth. Thorax entirely punctured, with fine and coarse punctures intermixed, puncturation much sparser on centre of disc, with very coarse punctures near sides, surface with a few scattered erect bristles; front angles blunt, produced and obtuse, hind angles obtusely rounded, lateral margins sub-parallel. Elytral striae finely punctured, intervals flat, very finely, somewhat sparsely punctured, with a single obsolete row of erect bristles, the latter more numerous in apical half. Pygidium convex, polished, with a few coarse punctures near centre and a few minute punctures at sides. Abdomen very coarsely, very shallowly punctured, sutures effaced. Metasternum finely punctured at middle, with a few coarser punctures near hind coxae, punctured like abdomen at sides.

Length, 3·4 mm.

Related to *T. hystrix*, but differs from it in the absence of the separately rounded sides of the clypeus and ocular lobes.

Trichillum **boucomonti,** sp. n.

Rufo-fuscous, oblong-oval, somewhat shining, head and thorax with dense erect yellow hair. Head with front and clypeus coarsely sparsely punctured everywhere, including the ocular lobes; an angular transverse carina between the front and clypeus, dividing the ocular lobes and sides of clypeus, obsolete at centre of head; clypeus with two wide, blunt acute teeth, separated by a U-shaped emargination equal to twice the width of each eye, ocular lobes and sides of clypeus separately rounded. Thorax coarsely entirely punctured, the punctures sparse at centre of disc and very dense at sides, of one type only, the front angles very blunt and obtusely rounded, hind angles broadly rounded, lateral margins arcuate, at each side just inside the centre of the margin a small impunctate raised area. Elytral striae faint, the intervals flat, with a single row of coarse punctures bearing erect hairs on the outside of the sutural and first interval, and on the inside of the remaining intervals. Pygidium very coarsely densely punctured at base, apical half very sparsely finely punctured. Metasternum very finely regularly punctured at middle, with suberect long yellow hairs, sides coarsely variolately punctured. Hind and middle femora with a few sparse yellow hairs.

Length, 3 mm.

Easily separated from the other known species by the combination of the double type of head puncturation, clypeal ridge, and denser erect hair covering the upper surface. Mr. Arrow informs me that the cephalic carina is entire and quite short in *T. ohausi*, whereas in *T. boucomonti* it is very wide and obsolete at the middle.

A NOTE ON THE GENUS *PACHYOPHTHALMUS*, B. & B. (DIPT. TACHINIDAE, MILTOGRAMMINAE)

By O. W. Richards, M.A., D.Sc., F.R.E.S.

Mr. D. Vesey FitzGerald recently allowed me to study a long series of flies of the above genus which he had bred from the nests of various wasps in Trinidad. To identify these specimens, it was necessary to examine specimens of certain N. American species. I therefore wrote to the late Dr. J. M. Aldrich who very kindly presented specimens of *P. distortus*, Allen, and of *P. floridensis*, Townsend, to the British Museum collection.

The following key will help in the separation of the species I have been able to examine.

1. A row of 9–16 bristles outside the frontals; the row very weak and sometimes scarcely or not distinguishable from the microscopic bristles lying more laterally. Fore tibiae with two posterior bristles and no anterodorsals. Proepimeron with one strong and 3–6 weaker bristles. Last abdominal tergite dark . . . . . 2.

. A row of 7–8 bristles outside the frontals and three-quarters as long as them, with few or no microscopic hairs outside them. Fore tibiae with one posterior bristle and at least one anterodorsal. Proepimeron with one strong and 2 (very rarely 3) weaker bristles. Central thoracic stripe produced on to scutellum. Last abdominal tergite reddish. Male phallus "bifid" . . . . . 3.

2. Orbits silvery, row of 9–14 bristles outside frontals, with more or less numerous bristles outside them; frontals larger. Mesonotum bristly, acrostichal bristles distinct, even in front of suture. Hind tibia with a bristle at centre in both antero- and postero-dorsal rows distinctly enlarged. Size smaller. Central thoracic stripe not produced on to the scutellum. Male phallus "truncate" *signatus* (Meigen) and *distortus*, Allen.

–. Orbits silvery, row of 12–14 bristles outside the frontals, with fine hairs which cannot at all be confused with those lying outside them; frontal bristles longer. Mesonotum with general bristly covering very short, only one pair of acrostichals (in front of scutellum). Hind tibia with no enlarged bristles in antero- and postero-dorsal rows. Size larger. Central thoracic stripe produced on to scutellum . . . . . *pelopoei* (Rondani).

. Orbits golden, no definite row of bristles outside the frontals, but numerous, irregular, fine hairs; frontal bristles about as in *signatus*. Mesonotum as in *pelopoei* but bristles a little longer. Hind tibiae as in *signatus*. Size as in *pelopoei*. Central thoracic stripe produced on to the scutellum Malayan species.

3. Orbits silvery. Grey insects . . . . . 4.

–. Orbits golden. General colour of dorsum of abdomen and of thorax brownish rather than greyish; dark markings of abdomen more extensive. Male genitalia as in *floridensis* but tuberculated part of the phallus rather narrower . . . . . *floridensis* subsp. *antillarum*, subsp. n.

4. Male genitalia (fig. 1) with the mesolobes a little broader; paralobes less dilated at base; dorsal process (fig. 1, *a*) of phallus short and broad *erythrura* (van der Wulp).

–. Male genitalia (fig. 2) with mesolobes longer and narrower; paralobes more dilated at base; dorsal process of phallus (fig. 2, *a*) long and narrow. *floridensis*, Townsend.

Notes on the Species.

P. signatus (Meigen) (1824).

I have a long series of this species both from England and from the continent. The latter specimens were mostly taken by small streams in S. France in company with various Fossorial Hymenoptera. In spite of great variation in size, I feel sure that only one species is involved, though a number of not very closely allied Hymenoptera are attacked. There are specimens in the British Museum from Nyasaland, Nigeria, and Massachusetts. The male genitalia are figured by Allen (1926, *Proc. U.S. Nat. Mus.*, **68** (art. 9) : pl. 3, fig. 13). Allen in his description states that the orbit of the male is golden. I have not found this so in the specimens I have examined, and it is at any rate very much less so than in the Malayan species.

P. distortus, Allen (1926).

This species so far can be distinguished only in the male sex, by examining the genitalia, which are figured by Allen (*loc. cit.*, pl. 3, fig. 14).

P. pelopoei (Rondani) (1859).

I have seen this species not very rarely on the sides of small streams in the Esterel, S. France. Here they attacked the wasps of the genus *Sceliphron* (olim *Pelopoeus*) which come to drink the water necessary for building mud-nests. Unfortunately, the flies are very difficult to catch and I have only one imperfect specimen. However, in the collection of the British Museum I have seen the following :—♂, S. India : Coimbatore, 24 Aug. '15, " parasitic on wasp " (*E. B.* coll.); ♀, S. Rhodesia : Mazoe, Oct. '29, " bred on *Chloridea obsoleta* " (*W. J. Hall*); ♀ (probably this species), Lake Victoria, Damba, Oct. '11, " nest of mud wasp with spiders " (*G. D. H. Carpenter*).

In the last-named specimen the acrostichals are rather large. In the specimen stated to have been bred from *Chloridea obsoleta*, there is no indication as to the conditions under which it was reared; such a variation in habits would require confirmation.

The principal characters for distinguishing *P. pelopoei* from *P. signatus* are given by Stein (1924, *Arch. f. Naturges.*, **90** (A) 6 : 227).

" *Malayan species.*"

I have examined a male of this species in the collection of the British Museum. It bears the following data :—Malaya, " nest of mud wasp " (*G. H. Corbett*). The specimen is the type of a species about to be described by Mr. Baranoff and is included here so that it may be placed in the appropriate species-group.

P. erythrura (van der Wulp) (1890).

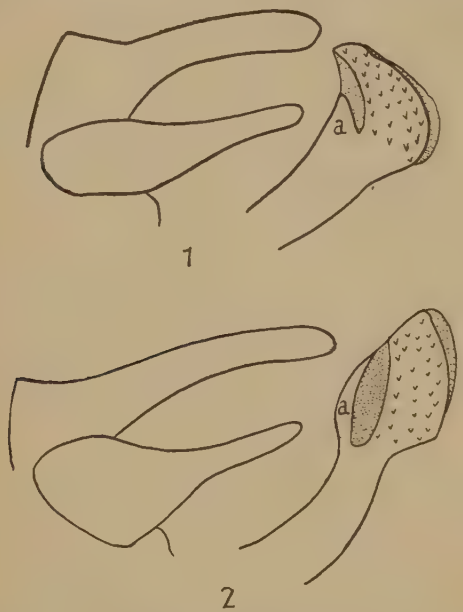
I have examined the type ♂ of this species. Miss D. Aubertin was kind enough to extract the ♂ genitalia for me, and a part of them is figured (fig. 1). I believe that *Miltogramma sarcophagina*, van der Wulp (1890) (♀ type also in the Brit. Mus.) is the ♀.

A similar drawing (fig. 2) has been made of the same parts in *P. floridensis*, Townsend, from a ♂ sent to the British Museum by Dr. Aldrich. The differences mentioned in the key are sufficiently obvious. I was, therefore, surprised to

notice that Allen's figure of "*floridensis*" (*loc. cit.*, pl. 2, fig. 12) (so far as it is possible to compare drawings of genitalia made by different authors) agrees with *erythrura* and not with *floridensis* as supplied by Dr. Aldrich (specimens which had probably been determined by Allen). I then re-examined my correspondence with Dr. Aldrich and found the following remarks. "You will notice that the so-called outer forceps in *floridensis* are more slender than indicated in Allen's figure. All our specimens are alike in this regard."

These contradictory facts seem to me to bear the following interpretation :—*P. floridensis*, Townsend, is the common species in the U.S.A. with genitalia as in my fig. 2.

P. erythrura occurs in Mexico and possibly in Southern U.S.A. It will be seen (*loc. cit.*, p. 11) that some of Allen's specimens of *floridensis* came from such



FIGS. 1–2.—(1) Part of ♂ genitalia of *P. erythrura* (van der Wulp) (type); (2) the same of *P. floridensis*, Townsend.

localities as Panama, Cuba, and New Mexico. I suggest that it was one of these southern specimens that he happened to pick on for making his drawing.

P. floridensis, Townsend (1892).

No very recent examination of the type of this species has been made, but a convenient interpretation is suggested in the discussion of the preceding species. I have studied the following specimens :—♂, Occoquan, Va., 22 Aug. '20 (*J. M. Aldrich*); ♂, Rock Creek Park, D.C., 1 Sept. '22 (*J. M. Aldrich*); ♀, bred cells "*Pelopoeus*" *cementarius*, Georgia, 30 July '97; ♀, nest of the same wasp, Washington, 27 July '97.

P. floridensis subsp. **antillarum, subsp. n.**

The chief differences between this form and the nominal form are indicated in the key. I have compared *antillarum* in great detail with Allen's description of *floridensis* (*loc. cit.*, p. 10) and find only the following differences :—parafrontals deep golden pollinose; abdomen much more thickly grey-brown pollinose, with darker, less pollinose band at posterior margin of each segment; acrostichals weak except for one pair in front of suture and one in front of scutellum.

Type ♂, Trinidad : Tunapuna, host collected 5 April, '33, parasites emerged 22 April '33 (*D. Vesey FitzGerald*), bred (no. 1733) from *Trypoxylon palliditarse*, Sauss.; allotype and 7 paratype ♀♀ with same data. The following further paratypes were also bred by Mr. FitzGerald in Trinidad :—2 ♀♀, 1 ♂, Tunapuna, no. 1729, 24 April '33 (same data as 1733); 2 ♀♀, 1 ♂, San Fernando, no. 1718, collected 2, emerged 11 April '33 (same host); 2 ♀♀, 1 ♂, Tunapuna, no. 2341, collected 6 Sept. '33, bred from *Sceliphron figulus*; 3 ♀♀, 1 ♂, Maracas bay, no. 2534, collected 1, emerged 20 Oct. '33, bred *Trigonopsis violacea*, Sm. (very small specimens); 4 ♀♀, East Coast, no. 2164, collected 1, emerged 8 Aug. '33, bred *Trypoxylon nitidum*, Sm. (these last four ♀♀ are very small and have the last tergite dark). Finally there are two ♀♀ paratypes from British Guiana which may, I think, safely be ascribed to this subspecies :—♀, Essequibo R., Moraballi Creek, 8 Sept. '29, no. 1801, Oxf. Univ. Exped. Brit. Guiana; ♀, same locality, 15 Sept. '29, no. 2107, Oxf. Univ. Exped. Brit. Guiana, shadowing a female of *Trypoxylon* sp. gathering mud.

The type, allotype and all the paratypes with collector's numbers, 1733, 2341, 2164, 1801, 2107, are in the collection of the British Museum; paratypes with collector's number 1729 have been returned to Mr. FitzGerald; paratypes with collector's number 1718 are in my collection; paratypes with collector's number 2534 have been deposited in the U.S. National Museum, Washington.

P. hinei, Allen (1926).

Although fully described by Allen (*loc. cit.*, p. 12), I am unable to place it with certainty in my key. The species is so far known only from Louisiana.

P. unica (Townsend) (1892).

Sarcomacronychia unica, Townsend ♂ = probably *S. trypoxylonis*, Townsend (1895) ♀.

These species were synonymised by Allen with *P. floridensis*, Townsend. Dr. Aldrich, however, wrote to me that *P. unica* was really distinct. Unfortunately, Dr. Aldrich died before our correspondence on the matter was complete. The following is a verbatim report of the notes he sent me on it. " 1 ♂, Las Cruces, New Mexico. Type and Townsend labels. Not the same as *Pachyophthalmus floridensis* Townsend. Front wider, one-fourth of head width; ocellars and verticals distinct; two rows of frontals, stopping before antennae. Dorsocentral 3, 1; acrostichal 2, 1 (small); sternopleural 3 (lower small). Mesonotum has much longer erect hair than in *floridensis*. Abdomen with large pair marginals on first segment as well as those on second, third and fourth segments; no discals. Hind edge of first, second and third abdominal segments with narrow silvery margin, striking when viewed above and in front,

when tip of fourth segment also shows it; fourth segment covered with deep yellow pollen except on apical third, which is shining dark reddish. Bristles of legs hardly different from *floridensis*, but I can't make out middle femur very well.

"Two other Las Cruces males marked type go here, but then they can't be types. One does not have the bristles on the first abdominal segment. Type in University of Kansas."

I cannot place this species in my key.

Finally, it may be noted that Dr. Villeneuve has recently revived the name *Amobia*, R.D. for this genus. Unless the identification of Robineau–Desvoidy's genus is absolutely certain, such a change of generic name seems undesirable.

I am much indebted to Miss D. Aubertin of the Natural History Museum for granting me every facility in the examination of the collection there.

ZWEI NEUE STAPHYLINIDENGATTUNGEN (COL.) AUS AFRIKA*

Von Dr. Max Bernhauer

(*Horn, Nieder-Oesterreich.*)

Euaesthetini.

Thaxterius, gen. n.

Körper ziemlich schmal und gleichbreit, etwas gewölbt. Der Kopf ist gross, so breit wie der Halsschild, mit grossen auf die vordere Hälfte gerückten, rundlichen, stark vorspringenden und grob facettierten Augen. Die Schläfen hinter den Augen stark entwickelt, viel länger als der von oben sichtbare Längsdurchmesser der Augen, die Kopfseiten äusserst fein gezähnelt. Zwischen den Augen befinden sich zwei, an Ocellen erinnernde grössere Punkte. Die Fühler sind kurz, ihre beiden ersten Glieder verdickt, das dritte Glied viel kürzer und schmäler als das zweite, das vierte etwas länger und nicht breiter als das dritte, die folgenden allmählich an Breite zunehmend, das zehnte stark quer, die beiden letzten eine gut abgesetzte Keule bildend, das vorletzte stark quer, verkehrt trapezförmig, das Endglied kurz, gegen die Spitze stark verengt. Die Oberlippe sehr kurz breit und sehr stark quer, am Vorderrande stark und dicht gezähnelt. Die Mandibeln sind sehr lang und schlank, stark gebogen, am Innerande mit einem langen, gekrümmten Zahn, die rechte am Aussenrande ungefähr in der Mitte stumpf gezähnt. Die Innenlade der Maxillen ist dicht und lang bewimpert. Die Kiefertaster sind ziemlich lang, ihr erstes Glied schlank, wenig kürzer als das zweite, dieses lang und schlank, das dritte ist viel kürzer als die zwei vorhergehenden zusammen, stark keulig verdickt, ungefähr in der Mitte am breitesten, nach vorn weniger stark verengt als nach rückwärts, das Endglied äusserst klein und schmal, pfriemenförmig, schwer erkennbar. Das Kinn ist kurz und breit, verkehrt trapezförmig. Die Zunge ist breit mit vorgezogenen Vorderecken, in der Mitte ausgerandet. Die Lippentaster sind kurz, das erste Glied schwer sichtbar, das zweite stark angeschwollen, oval, das Endglied äusserst fein, pfriemenförmig. Der Halsschild ist kaum breiter als lang, wenig schmäler als die Flügeldecken, nach rückwärts deutlich ausgeschweift verengt, vor der Mitte gerundet erweitert am Vorder- und Hinterrande ziemlich gerade abgestutzt, an den Seiten gezähnelt, am Seitenrande nicht

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* 39. *Beitrag zur Staphylinidenfauna des tropischen Afrika.*

gerandet, sondern gleichmässig auf die Unterseite gewölbt, ohne abgesetzte Epipleuren, längs der Mitte tief und scharf gefurcht, ohne Grübchen oder Eindrücke vor der Basis. Die Flügeldecken ziemlich quadratisch, nicht breiter als lang, hinten gemeinsam ausgebuchtet, mit scharfen Längsfurchen neben der Naht. Der Hinterleib nach rückwärts leicht erweitert, an den Seiten ziemlich breit gerandet, das siebente Tergit viel länger als die vorhergehenden, am Hinterrand mit einem feinen Hautsaum. Die Vorderbrust ist schmal, ihr scharfer Fortsatz tritt spitzig zwischen die Vorderhüften. Der Fortsatz der grossen und breiten, ungekielten Mittelbrust ist ziemlich kurz und reicht nur wenig zwischen die Mittelhüften. Die Beine sind kurz, sämtlich viergliedrig, die drei ersten Glieder sehr kurz, das Endglied wenig kürzer als die drei vorhergehenden zusammengenommen.

Genotype *T. sulcicollis*, gen. et sp. n.

Die neue Gattung gehört zweifellos in die Tribus Euaesthetini und unterscheidet sich von dem in der Körperform etwas ähnlichen Genus *Octavius* durch die stark entwickelten Augen, lange Flügeldecken und andere Bildung der Fühler hinlänglich. Von *Euaesthetus* ist die neue Gattung ebenso leicht durch die Bildung des Kopfes, des Halsschildes, inbesonders den Mangel der Basalgrübchen, die Fühlerbildung und andere Körpergestalt zu unterscheiden.

Über die Lebensweise des interessanten Tierchens ist mir nichts bekannt.

Thaxterius sulcicollis, sp. n.

Rostgelb bis gelbbräunlich, die Fühler, Taster und Beine heller gelb, graugelb behaart, mässig glänzend. Der Kopf ist deutlich breiter als lang, mit stumpf abgerundeten Hinterecken, ziemlich kräftig und dicht punktiert, längs der Mitte geglättet und ziemlich glänzend. Der Halsschild ist etwas schmäler als die Flügeldecken, fast so lang als breit, ausserhalb der Längsfurche, ziemlich stark und dicht, scharf eingestochen punktiert, wenig glänzend. Die Flügeldecken sind an der Naht etwas kürzer, an den Seiten etwas länger als der Halsschild, sehr fein und sehr dicht punktiert, wenig glänzend. Der Hinterleib ist fein und ziemlich dicht punktiert, mässig glänzend. Länge: 1·2–1·5 mm.

Kamerun, von *Professor Dr. Thaxter* erhalten und ihm in Verehrung gewidmet.

Quediini.

Arrowinus, gen. n.

Von robuster, aber doch gestreckter Gestalt, der Vorderkörper einschliesslich der Flügeldecken glänzend glatt. Der Kopf ist viel schmäler als der Halsschild, länger als breit, hinten nicht eingeschnürt, ziemlich gleichbreit, die Schläfen unten scharf und vollständig gerundet, die Randlinie namentlich hinten breit aufgeworfen. Die Augen sind ziemlich klein auf die Oberseite gerückt, bei Ansicht von oben fast vollständig sichtbar, ihr Längsdurchmesser fast nur halb so lang als die Schläfen hinter ihnen. Grosse Stirn-, Scheitel- und Schläfenpunkte sind nicht vorhanden. Die Fühler sind nicht lang, aber dünn, gegen die Spitze kaum verdickt, ihr erstes Glied ziemlich lang gestreckt, fast so lang als die drei folgenden zusammengenommen, das zweite Glied ist kurz, nur mässig länger als breit, das dritte mehr als um die Hälfte länger als das zweite, die folgenden gestreckt, doppelt so lang als breit, an Länge allmählich abnehmend, das vorletzte nur wenig länger als breit, das Endglied nur wenig länger als das zehnte. Die Oberlippe vorn fast gerade abgeschnitten, in der Mitte nicht eingeschnitten, vorn dicht und lang bewimpert. Die Kiefer kräftig und breit, vor der ziemlich scharfen Spitze gekrümmt, an der Innenseite von der Basis bis vor die Mitte mit einer breiten, gegen die Spitze stark verjüngten Membran, vor der Mitte je mit einem kräftigen Zahn, die linke Mandibel hinter

diesem mit einer flachen, stumpfen Erhabenheit. Die Innenlade der Maxillen ist am ganzen Innenrande lang und sehr dicht, goldgelb bewimpert, die Aussenlade ist an der Spitze mit noch längeren, zottigen, goldgelben Haaren dicht besetzt. Die Kiefertaster sind ziemlich lang und schlank, das dritte, kurze Glied wesentlich schmäler als das zweite Glied, ziemlich gebogen, das Endglied viel schmäler und fast doppelt so lang als das dritte, gegen die Spitze etwas verjüngt. Das Kinn ist stark quer, trapezförmig, vorn fast gerade abgestutzt. Die Zunge kurz, häutig, vorn schwach gerundet. Paraglossen innen dicht behaart. Die Lippentaster ziemlich schlank, das dritte Glied schmäler und länger als das

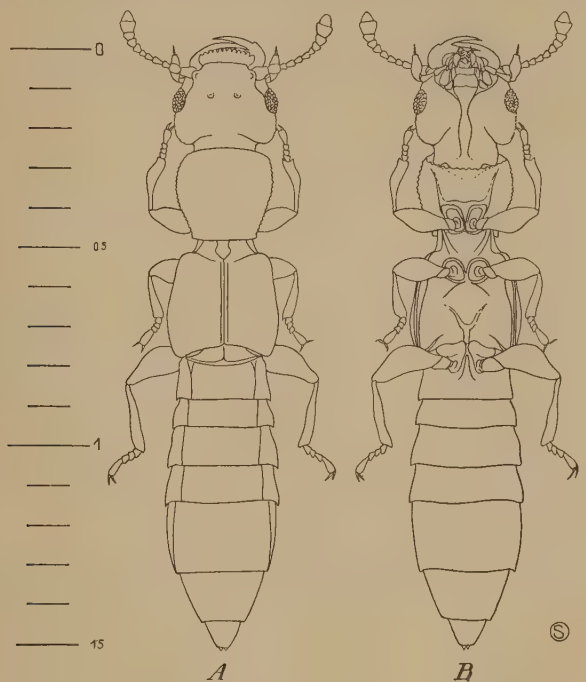

FIG. 1.—*Thaxterius sulcicollis*, gen. et sp. n., ♂; *a*. dorsalansicht; *b*. Ventralansicht. Massstab in Millimetern.

zweite, sehr gestreckt, gegen die Spitze schwach verengt mit abgerundeter Spitze. Der Hallsschild breiter als die Flügeldecken, länger als breit, an den Seiten gerundet, vorn schwach gerundet, neben den spitzigen Vorderecken deutlich ausgebuchtet, auf der Scheibe ohne Punkte, die Epipleuren bei seitlicher Ansicht nicht sichtbar. Die Flügeldecken sind sehr kurz, fast nur ein Drittel so lang als der Halsschild, hinten gemeinsam stumpf winkelig ausgeschnitten hinter der Basis, von der Schultern schief gegen das Schildchen stark eingedrückt, welcher Eindruck auch über den hinteren Teil des Schildchens geht. Der Hinterleib etwas bauchig erweitert, mit stark erhobenen Seitenrändern, gegen die Spitze lang, schwarz bewimpert. Das Prosternum vor den Vorderhüften sehr kurz, zwischen die Hüften mit scharfer und erhobener Spitze eintretend und in der Mitte gekielt. Die Schienen sind sämtlich stark bedornt. An den Vordertarsen sind die vier ersten Glieder ausserordentlich erweitert, stark quer, die Mittel- und Hintertarsen sind ebenfalls

fünfgliedrig, die Glieder kräftig entwickelt. Das erste Glied der Hintertarsen ist ungefähr so lang als die zwei folgenden zusammengenommen, das Endglied kürzer als das erste. Die Schienen und Tarsen sind dicht bewimpert.

Genotype *A. phaenomenalis*, gen. et sp. n.

Über die Lebensweise ist nichts bekannt.

Die neue Gattung hat infolge der auf die Oberseite gerückten Augen einige Verwandtschaft mit der Subtribus Triacri, ist aber wegen der sehr stark umgeschlagenen Halsschildseiten in die Subtribus Quedii zu stellen. Hier hat sie mit keiner der bisher bekannten Gattungen eine nähere Verwandtschaft. Von *Quedius* unterscheidet sie sich unter anderem durch die Bildung des ersten Fühlergliedes, des Kopfes und Halsschildes, durch die ausserordentlich kurzen Flügeldecken und die bedornten Vorderschienen und lässt sich auch von den übrigen Gattungen auf den ersten Blick unterscheiden.

Arrowinus phaenomenalis, sp. n.

Tiefschwarz, glänzend, der Analgriffel rötlich, die Beine und der Mund pechschwarz. Kopf fast nur halb so breit als der Halsschild, mit Ausnahme einer feinen Borstenpunktreihe am Innenrand der Augen und einigen Borstenpunkten hinter den Augen und an der Schläfenrandlinie ohne jede Punktierung. Halsschild breiter als die Flügeldecken, etwas länger als breit, vor der Mitte am breitesten, nach hinten stärker verengt als nach vorn, neben dem Seitenrande gefurcht, ausser einigen feinem Randpunkten vollständig unpunktiert, insbesonders ohne Dorsalpunkte und ohne einen grossen Seitenpunkt. Die Flügeldecken sind zusammen viel breiter als lang, nach rückwärts schwach erweitert, an der eingedrückten Basis mässig fein und ziemlich dicht punktiert, sonst unpunktiert mit einigen äusserst schwachen Andeutungen von Längsrunzeln. Das Schildchen ist sehr gross, mässig fein und mässig dicht punktiert, gelblichgrau behaart. Der Hinterleib ist der Quere nach gleichmässig gewölbt, fein und weitläufig, bis zur Spitze gleichmässig punktiert. Länge: 27 mm. (bei stark ausgezogenem Hinterleib).

Beim ♂ ist das sechste Sternit dicht und lang, wie geschoren behaart, das fünfte Sternit vor dem Hinterrand mit einem dichter behaarten Fleck.

Von diesem ganz merkwürdigen Tier sind bisher nur zwei Stücke mit dem Fundort: Natal (Coll. Sharp) bekannt, von denen sich eines in der Sammlung des British Museum und das zweite in meiner eigenen befindet.

OBSERVATIONS ON THE COCCIDAE OF SOUTHERN RHODESIA.—VII *

By W. J. Hall, D.Sc., F.R.E.S.

Asterolecanium bambusae, Boisd.

Boisduval, 1869, *Insectologie Agricole.*
Newstead, 1903, *Mon. Brit. Cocc.*, **2** : 151.
Green, 1909, *Coccidae of Ceylon*, **4** : 328.
Brain, 1920, Coccidae of South Africa, *Bull. ent. Res.*, **10** : 112.

On *Bambusa vulgaris* (Gramineae), Bulawayo Park, 4.x.28, and on the same host-plant from the Government Forest Nursery, Salisbury, Feb. 1934, ex coll. Dept. of Agriculture, Salisbury, No. 3637.

Rhodesian specimens are typical of this widely distributed species; it does not appear to be common in the Colony.

Asterolecanium conspicuum, Brain.†

Brain, 1920, Coccidae of South Africa, *Bull. ent. Res.*, **10** : 112.

On *Dichrostachys nyassana* (Leguminosae), Umtali, 10.iii.28, and on an unknown Leguminous tree, El Dorado, 29.iii.28.

The tests on the *Dichrostachys* material are variable, in some cases they rest completely exposed on the surface of the twig, in others they are to be found concealed, to a greater or lesser degree, at the base of little cylindrical cavities. On the other host-plant the individuals give rise to a kind of gall formation. This consists of a flattened convex circular blister-like growth some 3 mm. in diameter which has a small round hole centrally placed leading into a cavity within which the test is found. Brain (*loc. cit.*) records the formation of similar galls and refers to the close similarity between these and those caused by his *Amorphococcus acaciae*. Rhodesian examples are identical with Brain's photograph of *A. acaciae* (1918, *Bull. ent. Res.*, **9** : 112, Plate III, fig. 75*a*).

Under the microscope Rhodesian individuals were found to be identical with some specimens received from the Department of Agriculture, Pretoria, under another name. According to Mr. H. K. Munro, Collection Entomologist in that Department, this was a manuscript name of Brain's that he later changed to *conspicuum*. There can be little doubt, therefore, that the Rhodesian material is referable to Brain's *conspicuum*.

There is no mention in the original description of the fact that, in addition to the marginal series of paired glands, similar glands occur scattered all over the dorsum; these appear to be variable but generally speaking they are of two sizes, some being similar to those of the marginal series whilst others are markedly larger.

* Six parts of this series have already appeared as follows :—*Bull. ent. Res.*, 1928 and 1929, *Trans. ent. Soc. Lond.*, 1931; *Stylops*, 1932 and 1935.

† Mr. Green writes to say that examples of *Asterolecanium conspicuum* ex coll. Dept. of Agric., Pretoria, which he has examined, show that the paired glands are confined to the margin. Through the kindness of Mr. H. K. Munro I have been able to examine four of the seven slides of *conspicuum* made by Brain. All the individuals on these four slides show paired glands scattered over the dorsum in addition to those of the marginal series and Rhodesian specimens are identical with them in all respects.

Asterolecanium miliaris, Boisd.

Boisduval, 1869, *Insectologie Agricole*.
Green, 1909, *Coccidae of Ceylon*, **4** : 338.

On *Bambusa vulgaris* (Gramineae), Umtali, 1.xii.27 and 9.vi.28; *Dendrocalamus strictus* (Gramineae), Salisbury, 9.ix.32; *Yucca* sp. (Liliaceae), Avondale, Salisbury, Nov. 1933, ex coll. Dept. of Agriculture, Salisbury, No. 3577.

Rhodesian material agrees so closely with the description of this species as given by Green (*loc. cit.*) that, although no authentic specimens are available for comparison, there can be little doubt of its identity. Very heavily infested bamboos were found in the Municipal Gardens at Umtali. Yucca would appear to be an unusual host-plant, but the specimens are certainly identical with those from " bamboo."

Asterolecanium stentae, Brain.

Brain, 1920, Coccidae of South Africa, *Bull. ent. Res.*, **10** : 114.

On *Tephrosia* sp. (Leguminosae), Salisbury, 9.v.28 and 3.i.30.

Rhodesian individuals are identical with authentic material of *stentae*, Brain, with which they have been compared.

Cerococcus **theydoni,** sp. n. (fig. 1).

On an unknown plant, Theydon, 19.xi.28.

Test of the adult female globose and broadly oval to circular in outline. Surface smooth and brown, but covered with conspicuous tufts of secretionary matter which give to it the appearance of a minute burr.

Diameter of test of adult female, 1·6 mm.; height, 1·0 mm.

Adult female removed from its test and prepared for microscopical examination more or less circular and with hyaline integument. Antennae rudimentary consisting of a small

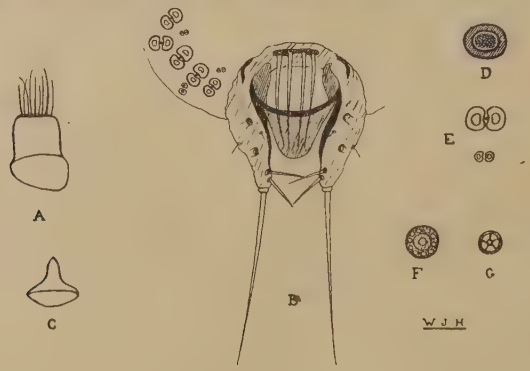

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Fig. 1.—*Cerococcus theydoni*, sp. n.: Adult ♀. A, antenna, × 340; B, anal segment, × 170; C, rudimentary limb, × 340; D, cribriform plate, × 340; E, the two types of paired glands from the dermis, × 340; F, multilocular pore from ventral dermis, × 680; G, quinquelocular pore from spiracular band, × 680.

protuberance carrying about eight relatively stout setae at the apex. Limbs represented by minute tubercles terminating in a straight claw; owing to the chitinisation of the tissues these, though very small, can be readily detected.

The abdomen terminates in two prominent irregularly conical lobes separated by a conical plate which is broadly rounded at the apex. Each lobe has a chitinous plate on its inner edge, a long stout seta (150μ) at the apex and two much shorter but stout spines near the apex on the inner margin; the lobes also carry what appear to be two or three large pores. Anal ring with eight setae. On either side of the anal lobes is a short marginal series of large paired glands set close together; these are somewhat larger than any found elsewhere on the dermis. From four to six small cribriform plates in a single transverse row occur at the base of the projection carrying the anal lobes, these have a wide densely chitinous border.

Dorsal dermis with numerous scattered paired glands of two sizes the one type being very much larger than the other. The smaller type is found also on the ventral dermis. Transverse series of multilocular pores occur ventrally just anterior of the anal lobes, these series become less and less conspicuous, and the pores fewer, further away from the lobes until finally the pores are found disseminated sparsely over the dermis. Posterior spiracular band forked. The pores are few and inconspicuous near both anterior and posterior spiracles and the bands are not readily discernible until about midway between the spiracles and the margin whence the pores are more numerous.

This very distinct species is allied to both *ovoides*, Ckll., and *ornatus*, Green, from both of which it differs in the nature of the tests, the presence of rudimentary limbs, and the nature and arrangement of the pores and glands.

Lecaniodiaspis mimosae, Mask. var. **brachystegiae**, var. n.

On *Brachystegia* sp., The Kopje, Salisbury, 23.xi.27; on the main trunk of a smallish tree.

This variety agrees with *mimosae* of Maskell as described by Brain (1920, *Bull. ent. Res.*, **10**: 116), and Morrison (1927, *Proc. U.S. Nat. Mus.*, **71** (Art. 17): 30), with the following exceptions :—

1. Stigmatic spines entirely absent.
2. Pore bands from the spiracles very inconspicuous, only close to the spiracles are there sufficient pores to see the band at all. The split pore band from the posterior spiracles not discernible.
3. Marginal setae confined to one or two on either side of the anal cleft.
4. Cribriform plates of irregular shape and rarely circular.

The only really significant difference between the Rhodesian specimens and *mimosae*, Mask., appears to be the total absence of stigmatic spines.

Lecaniodiaspis **parinarii**, sp. n. (fig. 2).

On *Parinarium mobola* (Rosaceae), Macheke, 29.xi.27 and 23.xi.28, Mazoe, 25.iii.28, and Inyazura, 5.x.32.

Test of the adult female broadly ovate and flat convex. The shape is very variable being much influenced by the very rough and uneven nature of the bark of the host-plant. Colour usually drab but individuals have been seen in which it is almost ochreous. The surface of the test is somewhat rough owing to several slightly raised and flattened protuberances; these are obscure, except with the aid of a binocular microscope, and exhibit no definite arrangement.

Length of the test of the adult female, 3–3·5 mm.; breadth, 2·5–3 mm.

Young individuals very flat, shiny brown, covered with a thin film of white translucent matter. A distinct median longitudinal carina is present and several less distinct carinae running from thence to the margin. In dead specimens the margin is usually slightly upturned.

Antennae of adult female from 180–200μ in length. Number of segments variable, usually five, of which the 2nd is much the longest and approximately equal to the sum total of the lengths of the 3rd, 4th, and 5th, which are subequal. In some individuals one

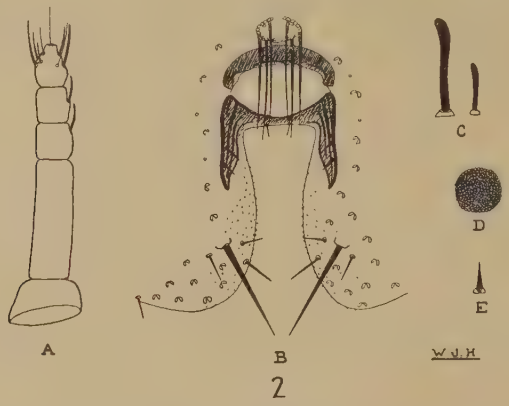

Fig. 2.—*Lecaniodiaspis parinarii*, sp. n.: Adult ♀. A, antenna; B, anal segment; C, stigmatic spines; D, cribriform plate; E, marginal spine. All × 228.

or two short segments are cut off the basal half of the 2nd and in others one of the three short terminal segments is missing.

Limbs wanting. Stigmatic spines usually represented by a single long spine (65μ) which is stout and slightly clubbed; in some instances a second spine of about half the length is also present. Midway between the spines of the two stigmatic areas is a single spine similar in all respects to the usual long spine of the stigmatic areas. Margin with short stout spines set at wide intervals.

Anal segment deeply cleft; at the base of the cleft is a large densely chitinous dermal plate each lobe of which is irregularly triangular. Each triangular plate carries two short and stout spines towards the apex. The median dorsal plate is arched. The anal lobes are broadly rounded and each carries a stout spine (about 65 μ long) and three short spines on its inner margin towards the apex. The margin of the cleft bears numerous minute spicules. Anal ring with six stout setae. There are 2 to 8 (usually 6) cribriform plates arranged in two longitudinal series.

Dorsal dermis with abundant paired glands; these are of two sizes, both small, but the one about half as large again as the other. No definite arrangement of the two types is apparent. Tubular glands numerous. Ventral dermis with the usual transverse series of multilocular pores anterior of the anal lobes.

Considering how abundant this host-plant is in the Colony it is surprising that this species has not been collected more often. It has marked characteristics and the presence of only six setae to the anal ring is an unusual feature for this genus.

The type is a young adult female.

Lecaniodiaspis tarsalis, Newst.

Newstead, 1917, *Bull. ent. Res.*, **8** : 16.
Brain, 1920, *Bull. ent. Res.*, **10** : 118.

On *Hibiscus* sp. (Malvaceae), Mazoe, 19.x.27 and Jan. 1933; on *Dombeya* sp. (Sterculiaceae), Municipal Gardens, Salisbury, 14.xi.27.

A Hibiscus shrub was found very heavily infested at Mazoe. It is curious that this species has only been collected on one occasion in view of the large numbers of these shrubs to be found not only at Mazoe but throughout the Colony.

Rhodesian individuals agree well with Newstead's description and with authentic material from South Africa with which it has been compared.

Odonaspis **phragmitis,** sp. n. (fig. 3).

Puparium of the adult female large, flat, oval and white in colour; the texture of the dorsal scale is thin but tough. First exuvium naked and shiny brown; second exuvium white, yellow at the margin particularly in the pygidial area, and coated with a thin film of white secretionary matter. Ventral scale entire, similar to and as well developed as the dorsal scale.

Male puparium oblong, tapering somewhat posteriorly, white with shiny brown naked exuvium.

Length of puparium of adult female, 3–3·5 mm.; breadth, 2–2·5 mm.
„ „ male, 1 mm.; breadth, 0·7 mm.

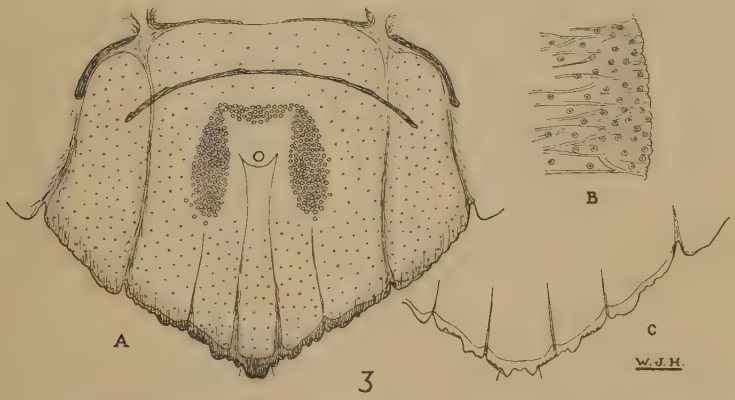

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Fig. 3.—*Odonaspis phragmitis*, sp. n.: Adult ♀. A, pygidium, × 114; B, marginal area of abdominal segment, × 228; C, margin of pygidium of the second stage female.

Adult female large, oblong oval, with well-defined segments. Antennae represented by minute tubercles carrying a single curved seta and a very small blunt spine. Groups of 20–40 parastigmatic glands associated with the anterior and posterior spiracles. In any one individual the numbers in the anterior and posterior groups are much the same. The articulation of the abdominal segments, both dorsally and ventrally, is marked by interrupted thickened chitinous bands. Marginal areas of abdominal segments with numerous minute pores, these are also found to a lesser degree in the marginal region of the thoracic segments. The entire margin is irregularly but finely serrated.

Pygidium with a single faintly bilobed median lobe, other pygidial lobes wanting or

obscurely represented. Plates wanting and there is only a single small spine at the base of the median lobe on either side. Margin irregularly serrated with four deep indentations on either side from which thickenings of the body wall run inwards. Circumgenital glands very numerous and in three groups which in most individuals are confluent; median group 35–40, lateral groups about 90–120. Dorsal surface with numerous minute pores. Anal orifice small, just cephalad of the centre of the pygidium.

The pygidium of the second stage female has two distinct median lobes, triangular in shape, set apart by a distance approximately equal to the width of one.

On *Phragmites communis* (Gramineae), Inyazura, 5.x.32, concealed beneath the sheathing bases of the leaves. When the leaves are removed most individuals come away with them.

This is a very typical representative of the genus *Odonaspis*. It is distinct from the other species of this genus known to the writer.

Odonaspis ruthae, Kot.

On Bermuda Grass (*Cynodon dactylon*), Mazoe, 15.vii.34.

Rhodesian individuals are typical of this species and agree closely with preparations from elsewhere in the writer's collection. In this case the specimens were found below ground or at ground level and were secreted beneath the encircling bases of the leaf sheaths.

Stictococcus **brachystegiae,** sp. n. (fig. 4).

Adult female.

Adult female hemispherical with a deep median transverse depression just in front of the anal orifice. Integument smooth and very highly polished; colour varying from brown, red brown, dark brown to almost black. Margin with a narrow fringe of closely set pale orange-yellow spines. Ventral surface with a thin film of white secretionary matter which extends beyond the margin under the fringe. A series of short vertical bands of similar white secretion round the margin, associated with short vertical bands of spines, can be seen in some specimens, these are frequently missing or obscure in old individuals. Genital orifice very large and conspicuous.

Under the binocular microscope a submarginal series of minute depressions in the dermis can be seen; a few similar depressions occur scattered over the dermis. Integument of old dried specimens brittle, after treatment in potash it swells becoming relatively thick and extremely tough.

Diameter of adult female, 4–5 mm.; height, 2·5 mm.

Antennae of adult female short and apparently of six segments but the segmentation is not always clearly marked and in some instances there may be only five present; distal segments with a few stiff spinose hairs. Legs well developed with the tarsus about $\frac{3}{5}$ the length of the tibia. There is only a single tarsal digitule of the usual long slender knobbed form but there are three ungual digitules, two of these are exceedingly broadly dilated whilst the third is of much the same length but very slender and faintly knobbed.

Anal orifice of normal form situated mediodorsally; upper plate with two long stout setae in front and eight shorter setae behind arranged in a semicircle, lower plate with four setae the median pair being much longer and stouter than the outer pair and similar to the anterior pair of the upper plate. Anal orifice surrounded by a very large number of long hairs.

Margin of body with a thickly set fringe of long very stiff spines arranged three to four deep; these vary in length from about 90 to 180 μ. At intervals between them, and slightly above, are some very long and slender hairs which are two or even three times as long as the longer spines in the marginal series. Many of the spines carry minute spicules at intervals throughout their length.

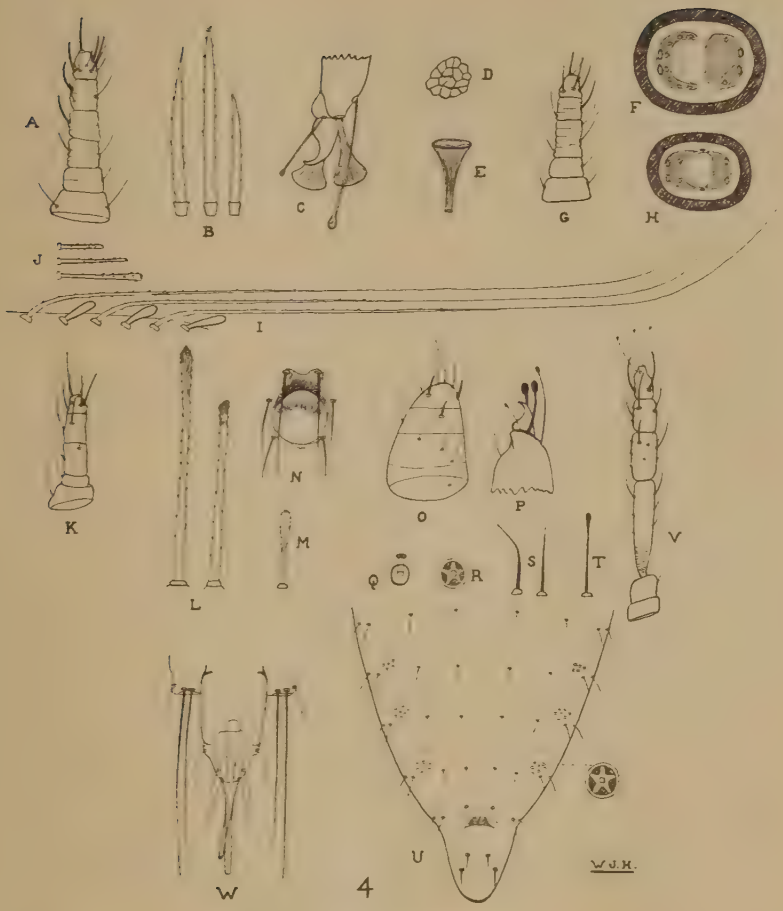


FIG. 4.—*Stictococcus brachystegiae*, sp. n.

Adult ♀ : A, antenna, × 114; B, marginal spines, × 228; C, foot, × 228; D, cellular area from dorsal dermis, × 228; E, trumpet-shaped cavity from the dorsal dermis of older specimens, × 228; F, anal orifice, × 114.
2nd stage ♀ : G, antenna, × 114; H, anal orifice, × 114.
♀ *larva* : I, marginal spines and setae, × 114; J, spines from the dorsal dermis, × 114.
♂ *larva* : K, antenna, × 114; L, a pair of marginal spines, × 228; M, dorsal spine, × 228; N, anal orifice, × 228.
Prepupa : O, antenna, × 228; P, foot, × 340; Q, tubular pore from the dorsal dermis, × many times; R, quinquelocular pore from the ventral dermis, × many times; S, pair of marginal setae, × 228; T, seta from the dorsal dermis, × 228.
Pupa : U, abdomen, × 114.
Adult ♂ : V, antenna, × 114; W, terminal segment, × 114.

Early adult females show series of spines, similar to those of the marginal series, running from the margin to a point on the dorsal dermis about midway between the margin and the median line. As many as nine of these series on either side have been seen and the spines in any one band may be actually denser than those in the marginal series. In old adult females it has only been possible to detect traces of these series.

Dorsal dermis in the early adult females with small irregularly circular cellular structures of varying sizes. In older specimens these are associated with trumpet-shaped cavities in the dermis. They occur scattered all over the dorsal dermis and there appears to be a definite series just within the margin. These are probably associated with the minute depressions in the dermis noted above. Ventral dermis with a few scattered quinquelocular pores and short hairs.

Second stage female. (Described from cast skins.)

Similar to the adult female but smaller and flat. Antennae shorter, apparently of five segments but the exact number is often difficult to determine. Legs as in the adult female the foot having the same unusual characteristics.

Anal orifice smaller, the upper plate carries four setae of which the anterior pair are much the longer and stouter, the lower plate has two long and stout setae.

Marginal spines very little shorter than those of the adult female but less numerous and with similar long hairs at intervals between them. The series of spines running in from the margin towards a median longitudinal line not represented.

Dorsal dermis with scattered hairs of varying lengths and with irregularly placed cellular areas as in the adult. Ventral dermis with a few scattered hairs and, round the margin, a few quinquelocular pores.

First stage or larva of female.

Broadly oval. Antennae, limbs and anal orifice similar to those of the second stage female with the exception that the inner edge of the upper plate of the anal orifice carries a long fringe of a feathery nature.

Marginal series of spines consisting alternately of short stout truncheon-shaped spines (44 μ long) and excessively long fine setae (900 μ long). All spines are directed posteriorly and the long setae, with the exception of those in the vicinity of the posterior extremity, lie close to the margin. The long setae carry a few minute spicules on the basal third. The setae at the posterior extremity are even longer than the normal marginal setae, but as they are usually broken it is difficult to assess their true length.

Dorsum with four longitudinal rows of long laterally serrated spines, those in the outer rows are from 50–80 μ in length whilst those in the inner rows are generally somewhat shorter. These spines are often somewhat dilated towards their distal extremities.

Larva of male.

Elongate oval, much more elongated than the larva of the female. Antennae short, of five segments of which the 2nd is the shortest and the 3rd the longest. Legs similar to those of the female larva. Anal orifice near the posterior extremity of the body with a feathery fringe to the anterior margin and surrounded by six setae.

Dorsum with four longitudinal rows of serrated spines (50–55 μ) which are somewhat dilated at their distal extremities. Marginal spines similar but longer and arranged in pairs of spines of unequal lengths, the upper one is usually rather shorter than the lower. Caudal segment with a pair of normal marginal setae and an additional pair of setae on either side. The latter consist of one very long seta some 350 μ in length and a shorter one of rather less than half this length.

Ventral dermis with four longitudinal series of simple setae.

Mouth-parts present but rudimentary and non-functional, represented by a small conical tubercle.

Male—prepupa.

Similar in shape and size to the male larva but enclosed in a small cell composed of loosely matted fibres of white secretionary matter.

Antennae very short and very stout at the base tapering rapidly to a broadly rounded tip; of three, possibly four, segments but divisions obscure.

Anal orifice similar to that of the larval stage but less obvious. Limbs very much shorter and relatively much stouter, articulation between the tibia and tarsus not apparent; there is sometimes an indication of the latter but in no instance has a complete division been seen. The digitules are the same in number and arrangement as in all the other stages with the exception that the excessively dilated ungual pair are replaced by a pair that are only very moderately dilated.

Dorsum with four longitudinal rows of slender spines (35 μ in length) which are slightly dilated at the tip. Marginal spines simple, arranged in pairs of spines of more or less equal length. The distal half of these spines is generally sharply bent in a posterior direction. Caudal pair of setae longer and of unequal lengths (90 and 130 μ).

Ventral dermis with four longitudinal rows of simple setae (25 μ).

Dorsal dermis with scattered short tubular pores, similar pores occur to a lesser degree on the ventral dermis together with some quinquelocular pores. The latter are most numerous marginally on the posterior abdominal segments.

Rudimentary mouth-parts as in the larva. No evidence of wing lobes.

Male—pupa.

A single example of the pupal stage has been seen, but as it was just at the point of moulting many of the characters are obscured by the adult male that is obvious within. Thus the nature of the head, antennae and limbs is not clear. The wing lobes are obvious. The tip of the abdomen is quite different from that of the prepupa being drawn out into a bluntly rounded conical process which carries two pairs of setae on its dorsal aspect. Each abdominal segment with a pair of setae marginally on each side, these are simple, straight and somewhat shorter than those found in the prepupa. On the ventral dermis, a little within the margin, are three well-defined groups of small quinquelocular pores in positions corresponding to the marginal spines. No similar pores occur elsewhere, nor are there any of the tubular pores which are found in the prepupa. Dorsal dermis with four longitudinal rows of short simple setae.

Male—adult.

Head broader than long with a few bristles in the frontal region. No median longitudinal suture obvious but an ocellus close to each eye. Antennae of medium length consisting of six segments of which the third is much the longest. Excluding the first and second segments the fourth is the widest segment; the third is wide at its distal extremity tapering considerably to its junction with the second. The segments carry a few hairs and bristles and at the apex of the sixth are three very slender and faintly knobbed setae.

Legs long and slender; all digitules very fine and faintly knobbed, one tarsal and three unguals present as in the other stages.

Terminal segment of the abdomen with a pair of very long marginal bristles on either side. Genital armature with three pairs of long bristles; stylus in two parts both bluntly rounded but one slightly shorter than the other.

On *Brachystegia* sp. (Leguminosae), Mazoe, 8.x.27, Theydon, 4.xii.27, and on *Berlinia globiflora* (Leguminosae), Theydon, 19.xi.28. The individuals generally occur in colonies, but whether they occur as large or small colonies or isolated individuals, they are invariably attended by ants which form a closely matted covering of a somewhat fibrous nature over them.

This is a highly interesting representative of a very remarkable genus. The adult female at first sight is very similar to that of *gowdeyi*, Newst. Through the courtesy of Mr. F. Laing of the British Museum a cotype slide of *gowdeyi*, Newst., has been available for examination and material of the same species was also very kindly sent by Mr. H. Hargreaves of the Department of Agriculture, Kampala, Uganda.

The adult female of *brachystegiae* differs from that of *gowdeyi* in the following respects :—

1. It is about twice as large as *gowdeyi*.
2. The narrow vertical bands of white secretion are not confined to the anterior stigmatic clefts as in *gowdeyi*. Several are present but are obscure in all but the early adult female.
3. There are usually six segments to the antennae whereas *gowdeyi* has five.
4. The marginal fringe in *gowdeyi* is more regular and uniform due to the fact that there is not the same variation in length of the setae as is found in *brachystegiae*.
5. *brachystegiae* has many more hairs around the anal orifice.
6. The setae on the ventral dermis are somewhat different.

The female larva is larger than that of *gowdeyi*, Newst., and quite different. The long marginal setae are of exceptional length in *brachystegiae* and very much longer than the corresponding setae in *gowdeyi*. The spines of the dorsal series also are straight and not curved as in *gowdeyi*.

The larvae are dimorphic, a characteristic that has been noted in other species of this genus. The male larvae are very similar to those of *gowdeyi* but rather larger. It may be pointed out that rudimentary mouth-parts such as occur in *brachystegiae* are also to be found in *gowdeyi*.

All stages of *brachystegiae* have been found, and it is of particular interest that apparently two pupal stages occur. The presence of two pupal stages does not appear to have been recorded before for the species of this genus. The prepupal stage presents many striking features and differences from the male larva and it is also very different from the pupal form. Both the male larvae and prepupae possess rudimentary non-functional mouth-parts.

A peculiar characteristic common to all stages is the nature of the digitules to the foot, there is only one tarsal digitule but three ungual digitules. Preparations of *sjostedti*, Ckll., *gowdeyi*, Newst., *multispinosus*, Newst., *formicarius*, Newst., and *coccineus*, Newst. (? Mss.), in the writer's collection also show the same curious characteristic.

The type is an early adult female.

FURTHER NOTES ON *AULACOCYCLUS* (COL., PASSALIDAE)

By John R. Dibb, F.R.E.S.

The following notes supplement a previous paper in this journal * on the Australian species of the genus *Aulacocyclus*, and before discussing the non-Australian species, some further observations can now be made upon *A. errans*, Blkb., involving new synonymy and indicating an extended geographical range for the species.

The references to each species are here included in order to conform to the previous arrangement although the Junk Coleopterorum Catalogus—Passalidae, is in the press. New synonymy, however, is now required.

Aulacocyclus errans, Blackburn.

Blackburn, 1896, *Trans. Roy. Soc. S. Austr.*, **20** : 233.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 275; 1918, *loc. cit.*, **7** : 19.
Dibb, 1932, *Ent. Mon. Mag.*, **67** : 32; 1932, *Stylops*, **1** : 258, fig. 4; 259.
Aulacocyclus fracticornis, Kuwert, 1891, *Deuts. ent. Z.*, **1891** : 170; 1897, *Novit. Zool.*, **4** : 279.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 274.
Dibb, 1932, *Stylops*, **1** : 258. (**n. syn.**)
Aulacocyclus arcuatoclypeatus, Kuwert, 1891, *Deuts. ent. Z.*, **1891** : 170; 1897, *Novit. Zool.*, **4** : 278.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 274. (**n. syn.**)
Aulacocyclus rotundatoclypeatus, Kuwert, 1891, *Deuts. ent. Z.*, **1891** : 170; *Novit. Zool.*, **4** : 278.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 274.
Dibb, 1932, *Stylops*, **1** : 257. (**n. syn.**)

In Kuwert's first list of the Passalidae dated 1891 he includes the name *fracticornis*, Kuwert, with the following remarks :—"22 mill. Südsea (Patria ?). Kopfhorn sehr scharf gebrochen, an seiner Spitze kaum zweizähnig." These few words cannot be deemed sufficient to constitute a description of the species under review, and this first reference to *fracticornis* is best treated as a *nomen nudum*. Kuwert's description of the species was not forthcoming until 1897, by which time Blackburn had already described it (in 1896) as *errans*. The name *fracticornis*, Kuwert (1897), is placed as a synonym, *errans* having priority.

Blackburn's description consists of a short latin diagnosis as follows :—

"*A. errans*—Minus latus; minus convexus; nitidus; rufobrunneus; vertice cornuto, cornu adunco supra sulcato in apice emarginato; prothorace sulco marginale excepto sublaevi (ut *A. edentuli* Macl.), utrinque pone medium fovea curvata impresso; elytris minus fortiter striatis, striis aequaliter valde distincte punctulatis, puncturis in striarum interiorum parte antica quam in striis exterioribus haud minus perspicuis, interstitiis nullo nodo convexis. Long., 11·1; lat., 4·1."

The opportunity now occurs to offer a more detailed description necessitated by our wider knowledge of the closely allied species of *Aulacocyclus* following more recent work upon the genus.

Redescription of *Aulacocyclus errans*, Blackburn.

Antennal basal lamellae 1 and 2 three times as long as broad. Anterior margin of labrum concave. Mentum strongly punctate with the exception of the central plate which is smooth and bears a distinct groove. Anterior margin of head usually convex, rarely

* Dibb, 1932, *Stylops*, **1** : 257–263.

concave. Frons smooth and shining. Central tubercle with stout upright base, elbowed, horizontal distad, apex notched, upper side of horizontal portion grooved. Vertex strongly punctate, the punctures concentrated at the bases of the supra-orbital ridges. Anterior margin of thorax concave, outer angles prominent, anterior marginal furrow much dilated and punctate; scars crescentic, deeply impressed. Anterior intermediate areas of metasternum densely punctate; metasternal plate impunctate; lateral areas broad and finely rugose. Penultimate abdominal sternite dilated in middle. Dorsal elytral striae not deeply impressed, usually more deeply impressed than the lateral striae. All the grooves of the elytra are distinctly and evenly punctate; ribs flat. Middle tibiae with large spur and hind tibiae having small spur.

Length, 22–28 mm.

Variation :—Puncturation of head varies to a large extent, the smaller examples, as is usual in the PASSALIDAE, appearing to be more heavily punctured. Groove on central plate of mentum occasionally wanting or faint. Pronotal scars sometimes comma-shaped or with middle portion constricted. (For further notes on variation, *see* Dibb, 1932, *Ent. Mon. Mag.*, **67** : 32.)

Distribution :—

NEW GUINEA : Fly River Region.

AUSTRALIA :—Cooktown, McIvor River, Cardwell, Kuranda, Melanda and Cape York, Queensland; New England District and Richmond River, New South Wales; Western Australia.

The two Kuwertian species *rotundatoclypeatus* and *arcuatoclypeatus* are now considered to be synonyms of *errans*, Blkb. Both names appeared in Kuwert's list of 1891, but the remarks following them (as in the case of *fracticornis* ante) do not provide a description. In Kuwert's monograph of 1897 these species are separated in his table by the slight variation in the formation of clypeal margin and the remaining points referred to are characters which have since been shown to be possessed by the variable *errans* (*fracticornis*, Kuwert).

Aulacocyclus rosenbergi, Kaup.

Originally recorded from the island of Nias. No evidence is yet forthcoming to support this record, and it is highly probable that it is incorrect. I propose to treat the species as of Australian origin.

THE SPECIES OF *Aulacocyclus* EXCLUDING AUSTRALIAN FORMS.

Notes on the geographical distribution of the species of this genus have recently appeared showing that eight species have been recorded from localities other than the continent of Australia. To these we have now to add *errans*, Blkb., following the extension of the geographical range of this species, and also *zangi*, sp. n. described below.

The non-Australian species may now be separated by the table which follows.

Key to the Non-Australian species of Aulacocyclus.

1. Central tubercle bifid distad; antennal lamellae rather long (middle lamella 3·5 to 4 times as long as broad); grooves of elytra with or without punctures . . . . . 3.
–. Central tubercle not bifid distad . . . . . 2.
2. Central tubercle tridentate distad; antennal lamellae short (middle lamella 2·5 to 3 times as long as broad); grooves of elytra usually with strongly impressed punctures . . . . . *tricuspis*, Kaup.

–. Central tubercle terminating in one sharp point without ramifications; antennal lamellae long (middle lamella 4 to 5 times as long as broad); small species—20 mm. . . . . *felderi*, Stol.
3. Central tubercle, seen laterally, with basal vertical part twice as broad as horizontal apical part; grooves of elytra distinctly punctate; Northern Indian species. . . . . *andrewesi*, Grav.
–. Central tubercle, seen laterally, not as above . . . . . 4.
4. Anterior margin of head without groove or ridge; antennal lamellae very long (middle lamella 5 to 5·5 times as long as broad); central tubercle, seen laterally, with basal portion so broad that only one-fifth of the breadth of the horn overhangs in front; dorsal elytral grooves feebly punctate *zangi*, Dibb.
–. Anterior margin of head with groove or ridge; antennal lamellae long (middle lamella 4 to 5 times as long as broad) . . . . . 5.
5. Central tubercle, seen laterally, having no horizontal apical portion, its frontal margin vertical from apex to frons. . . . . *papuanus*, Heller.
–. Central tubercle, seen laterally, with horizontal apical portion . . . 6.
6. Dorsal grooves of elytra impunctate; antennal lamellae long (middle lamella 4·5 times as long as broad); form flattened; large species 28–30 mm. . . . . *glabriusculus*, Kuw.
–. Dorsal grooves of elytra punctate . . . . . 7.
7. New Caledonian species . . . . . 9.
–. Non-New Caledonian species . . . . . 8.
8. Lateral areas of metasternum narrow; central tubercle scarcely pedunculate; puncturation of elytral striae variable, but lateral striae always bearing more conspicuous punctures than the dorsal striae; antennal lamellae longer . . . . . *perlatus*, Kaup.
–. Lateral areas of metasternum broadened; central tubercle pedunculate; puncturation of elytral striae distinct, deeply impressed and even dorsally and laterally; antennal lamellae shorter . . . . . *errans*, Blkb.
9. Small species—22 to 25 mm.; elytral striae with strongly impressed punctures . . . . . *rouxi*, Heller.
–. Large species—28 to 35 mm.; elytra more flattened with punctate striae the punctures not so deeply impressed . . . . . *pugnax*, Fauvel.

Notes on the Species.

Aulacocyclus tricuspis, Kaup.

Kaup, 1868, *Col. Hefte*, **3** : 7; 1871, *Berlin ent. Z.*, **15** (suppl.) : 18 (*Comacupes*).
Kuwert, 1897, *Novit. Zool.*, **4** : 284 (*Tristorthus*).
Fauvel, 1903, *Rev. d'Ent. Caen*, **22** : 360 (*Comacupes*).
Gravely, 1918, *Mem. Ind. Mus.*, **7** : 19.
Dibb, 1932, *Ent. Mon. Mag.*, **68** : 31; 1933, *loc. cit.*, **69** : 198.
Aulacocyclus fortis, Kuwert, 1897, *Novit. Zool.*, **4** : 283. (**n. syn.**)
Tristorthus severini, Kuwert, 1897, *Novit. Zool.*, **4** : 284. (**n. syn.**)
Tristorthus puncticollis, Heller, *in* Sarasin & Roux, 1916, *Nova Caledonia, Zool.*, **2**, (3) : 353. (**n. syn.**)

The above synonymy is suggested on the following grounds. Kuwert's *fortis* is based upon variable characters which have been shown to be possessed by *tricuspis* on the examination of a long series of examples (Dibb, 1932, *loc. cit.*). The form *severini*, Kuwert, is based upon reduction in size only (17 mm.) and can therefore no longer stand as a distinct species. Heller, in his work on New Caledonia of 1916, appears to have disregarded these Kuwertian species and described the form which he calls *puncticollis*, remarking at the same time that his specimens apparently represent the same form which Fauvel refers to as a small form of *tricuspis* which came from the same locality. I therefore suggest

that *puncticollis*, Heller, is the same as *severini*, Kuwert, and that both names should be treated as synonyms of *tricuspis*, Kaup, or if desired *severini* might be considered as a variety of *tricuspis*.

Apart from New Caledonia, Gravely refers to a single example of *tricuspis* from the island of Woodlark.

The tridentate central tubercle in this species distinguishes it from the other species of the genus.

Aulacocyclus felderi, Stoliczka.

Stoliczka, 1873, *J. Asiat. Soc. Bengal*, **42** : 152.
Kuwert, 1891, *Deuts. ent. Z.*, **1891** : 171 (*Comacupes*); 1897, *Novit. Zool.*, **4** : 283 (*Tristorthus*).
Arrow, 1907, *Trans. ent. Soc. Lond.*, **1907** : 447 (*Comacupes*).
Gravely, 1918, *Mem. Ind. Mus.*, **7** : 18.
Dibb, 1933, *Ent. Mon. Mag.*, **69** : 197.

One of the smallest species of the genus, unique in having the central tubercle simply pointed at apex. It has been recorded from Amboina, Ceram and New Guinea. One specimen in the Hincks-Dibb collection is labelled Bougainville Island, Solomon Islands, but supporting records are necessary before it can be said that the range of the species extends to the Solomons.

Aulacocyclus andrewesi, Gravely.

Gravely, 1914, *Mem. Ind. Mus.*, **3** : 211, 319.
Dibb, 1933, *Ent. Mon. Mag.*, **69** : 198.

Described from a unique specimen from the Anamalai Hills, Northern India. This isolated example is peculiar in occurring so much farther north than any other species of *Aulacocyclus* and no subsequent records are available. From Gravely's description and figures, it seems most closely allied to the widely distributed species *perlatus*, Kaup; it is, however, difficult to point to any character, apart from the central tubercle, by which to differentiate the species.

Aulacocyclus **zangi,** sp. n.

A single example of a most remarkable Aulacocycline from New Guinea necessitates its description as a new species. I place it in the genus *Aulacocyclus*, at least until further material is available, although the complete fusion of the clypeus and frons might be a character of sufficient importance, under the present classification of Gravely, to make it the type of a new genus. In all other examples of the subfamily AULACOCYCLINAE the clypeus cannot be referred to as exposed, but its point of fusion with the frons is marked by a fold and/or groove along the anterior margin of the head. This character is wanting in the new species, and it is only at the extreme outer angles of the anterior margin of the head that any indication of the clypeus can be traced. I dedicate the new species to Richard Zang, a past student of the PASSALIDAE.

Description :—

Form cylindrical. Antennal lamellae long, three in number, middle lamella at least five times as long as broad. Mandibles with tridentate lower tooth, middle tooth minute, upper tooth strongly bidentate. Anterior margin of head straight, without fold or groove, shining impunctate; clypeus not exposed and only faintly discernible at outer angles; head dorsally smooth and shining except at posterior bases of supra-orbital ridges where scattered punctures appear; supra-orbital ridges much depressed and in front at their bases having a large impunctate impression on each side of the central tubercle; at the junction of the eye canthus with the antero-frontal margin the angle formed is 135°. Central tubercle, seen from in front, triangular, at basal line one half as broad as the whole head,

seen laterally, basal portion extremely broad with only one-fifth of the breadth of tubercle overhanging anteriorly; extremity of horn blunt, receding posteriorly. Labrum concave. Mentum laterally with dense hair-bearing punctures with triangular central plate impunctate with a short groove in the middle line not reaching half-way to base. Thorax having deeply impressed anterior marginal groove in which are only a few scattered punctures; scars deep, punctate; anterior angles acute, rounded; scutellum impunctate; lateral areas of metasternum rather broad and shallow, with minute hair-bearing punctures; anterior intermediate areas of metasternum densely punctate and hairy. Grooves of elytra deeply impressed, the dorsal punctures very feeble, the lateral punctures more distinct. Abdominal sterna polished, impunctate with the exception of the whole of the basal segment and the central portion of the second segment which are rugose. Intermediate and posterior tibiae with small spur.

Length, 24 mm. Breadth, 8 mm. Length of elytra, 15 mm.

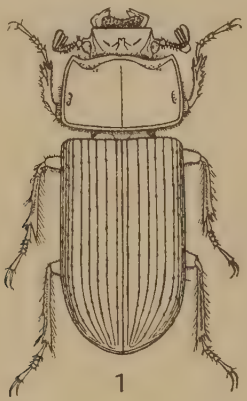


Fig. 1.—*Aulacocyclus zangi*, sp. n. (× 2).

Fig. 2.—Lateral view of head of *A. zangi*, sp. n. (× 2).

Type : unique in coll. Hincks & Dibb (no. 6102).
New Guinea : Finschhafen.

Aulacocyclus papuanus, Heller.

Heller, 1910, *Abh. zool. Mus. Dresden*, **13** : 15 (*Tristorthus*).
Dibb, 1933, *Ent. Mon. Mag.*, **69** : 198.

One of the four species of *Aulacocyclus* occurring in New Guinea, distinguishable by the structure of the central tubercle in which the anterior face is verticle. In this character alone it shows a rather close resemblance, in a lateral view, to the recently described *A. gravelyi*, Dibb, from Australia.

Aulacocyclus glabriusculus, Kuwert.

Kuwert, 1891, *Deuts. ent. Z.*, **1891** : 170; 1897, *Novit. Zool.*, **4** : 280.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 276; 1918, *loc. cit.*, **7** : 17.
Dibb, 1933, *Ent. Mon. Mag.*, **69** : 198.

An easily recognised species on account of its large size and the impunctate dorsal elytral striae. All the existing records are from the island of Aru. Thirty-one examples in coll. Hincks & Dibb show a remarkable consistency throughout the series, and it is difficult to point to any variable character. This is somewhat unusual in view of the variation which has been established in most species of the genus. Attention might here be drawn to the present view held upon the question of variation in the species of the PASSALIDAE. It has been found that in those cases where large numbers of a species have been available for examination a very considerable amount of variation can be established as a general rule.*

The series of *glabriusculus* above referred to might have been collected from a single colony which would account for the constant aspect of the individual examples. More material is therefore required before the question of variation in this species can be discussed.

Aulacocyelus perlatus, Kaup.

Kaup, 1868, *Col. Hefte*, **3** : 7.
Kuwert, 1891, *Deuts. ent. Z.*, 170 (*parreyi* var.); 1897, *Novit. Zool.*, **4** : 281.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 276; 1918, *loc. cit.*, **7** : 17.
Dibb, 1932, *Stylops*, **1** : 257; 1933, *Ent. Mon. Mag.*, **69** : 198.
Aulacocyclus parryi, Kaup, 1868, *Col. Hefte*, **3** : 8; 1871, *Berlin ent. Z.*, **15** (*suppl.*) : 16.
Kuwert, 1891, *Deuts. ent. Z.*, **1891** : 170; 1897, *Novit. Zool.*, **4** : 282.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 276, 319; 1918, *loc. cit.*, **7** : 17, 20.
Hincks & Dibb, 1932, *Ent. Mon. Mag.*, **68** : 220.
Dibb, 1932, *Stylops*, **1** : 257. **(n. syn.)**
Aulacocyclus dilatus, Kuwert, 1891, *Deuts. ent. Z.*, **1891** : 170; 1897, *Novit. Zool.*, **4** : 281, 282.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 276.
Dibb, 1933, *Ent. Mon. Mag.*, **69** : 197. **(n. syn.)**
Aulacocyclus aruensis, Kuwert, 1891, *Deuts. ent. Z.*, **1891** : 170; (*parreyi* var.); 1897, *Novit. Zool.*, **4** : 281, 282.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 277, 319; 1918, *loc. cit.*, **7** : 18. **(n. syn.)**
Aulacocyclus variolosus, Kuwert, 1897, *Novit. Zool.*, **4** : 282.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 277. **(n. syn.)**

It is suggested that this species embraces a number of forms which have previously been given specific rank. If desired the old names may be retained in a subspecific or varietal denomination, but no well-marked indication can be given to those forms above referred to as new synonyms.

The synonymy is based upon an examination of about 100 examples including specimens from the following localities :—

NEW GUINEA: Fly River, Sattleberg, Fak-Fak; SUDEST I.; ARU I.; CERAM I.; TEVOR I. (Geographical position unknown.)

It is significant, in view of the synonymy outlined above, that Kuwert in 1891 referred to *aruensis* and *perlatus* as varieties of *parryi* and in 1897 remarks upon the close approximation of *variolosus* to *dilatus*. Had his materials been more extensive, he would have observed that he was investigating one variable species.

A. perlatus, Kaup, is evidently closely allied to *errans*, Blkb., but differs in having less impressed elytral striae, narrower lateral areas to the metasternum and a less pedunculate central tubercle.

* Hincks, 1934, *Ent. Mon. Mag.*, **70** : 151.

Aulacocyclus celebensis, Heller.

Heller, 1898, *Abh. zool. Mus. Dresden*, **7** : 22.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 277.
Dibb, 1933, *Ent. Mon. Mag.*, **69** : 198.

In the original description Heller refers to the similarity of this species to *parryi* and *aruensis* the main character for its differentiation being the form of the central tubercle, a character very variable in *perlatus*. If therefore the synonymy under *perlatus* is accepted, it would seem probable that *celebensis* is the form of *perlatus* which occurs on the island of Celebes.

In view of the above considerations this species is not included in the key to the non-Australian species. Specimens from Celebes have not, so far, been available to me for examination and the species must therefore stand, at least until further material is forthcoming.

Aulacocyclus pugnax, Fauvel.

Fauvel, 1903, *Rev. d'Ent. Caen*, **22** : 359 (*Comacupes*).
Zang, 1905, *Notes Leyden Mus.*, **25** : 228.
Gravely, 1914, *Mem. Ind. Mus.*, **3** : 277.
Dibb, 1933, *Ent. Mon. Mag.*, **69** : 198.

Aulacocyclus rouxi, Heller.

Heller *in* Sarasin & Roux, 1916, *Nova Caledonia, Zool.*, **2** : 352.
Dibb, 1933, *Ent. Mon. Mag.*, **69** : 198.

The last two species above mentioned, both recorded from New Caledonia, are unknown to the writer and for this reason are separated in the key on the character of size and by their locality. They differ from *tricuspis*, the only other species from that Island, in having a bifid central tubercle.

From the descriptions there are strong indications that *pugnax* is allied to the Australian *edentulus*, McLeay, and *rouxi* to the well-known *errans*, Blkb.

NEW COCCIDAE (HEM.) FROM KENYA

By H. C. James, B.Sc., Ph.D., F.R.E.S.

(*Zoological Laboratory, Cambridge.*)

Paraputo, Laing.

Paraputo **multispinosa**,* sp. n. (fig. 1).

The material from which this description was made was hard, dry and much abraded before it came into the writer's possession. The adult female is rounded in outline, highly convex dorsally, and exhibits traces of having been covered in life with a white secretion.

With from twelve to fourteen pairs of cerarii with the following number of spines per cerarius (commencing posteriorly) (1) 8 to 11, (2) 20 to 24, (3) 23 to 26, (4) 16 to 27, (5) 18 to 22, (6) 13 to 15, (7) 8 to 13, (8) 3 to 5, (9) 1, (10) 1, (11) 1, (12) 1, (13) 2 to 4; the posterior eight pairs of cerarii are always well defined and consist of spines intermixed with setae

* Since *multispinosa* is more closely related to *Paraputo ritchiei* than to any other species known to the writer, it is placed provisionally in the genus *Paraputo*; he recognises, however, the probability that on a revision of the group, *Paraputo* like *Ceroputo* will be merged into the main genus, *Puto*.

but nos. 9, 10, 11 and 12 in the thoracic region may be ill defined or absent; the most anterior two pairs in the cephalic region always well defined. *Segmentation* clearly demarcated in the abdominal region. A characteristic body seta consists of a short stout structure, flexed near the apex and blunt tipped; the normal type of pseudococcine setae also occurs and they are particularly abundant ventrally. The *derm* is crowded with pores which vary in shape from subcircular to definite indications of triangularity; circular multilocular pores present in the posterior ventral region of the abdomen; aggregations of tubular ducts open in the last and second last intersegmental spaces on the ventral aspect near the margins. Anterior and posterior *ostioles* large with dilated lips and fringed with setae; ventral cicatrice present. *Antennae* six segmented in the proportions of (1) 13, (2) 15, (3) 19, (4) 11, (5) 11, (6) 23. *Eyes* not detected. Rostrum dimerous, terminal segment very long. *Legs* short and stout; hind coxae bear a large number of translucent pores and a few are also present on margins of hind femora; ungual digitules knobbed, tarsal digitules present, but non-capitate.

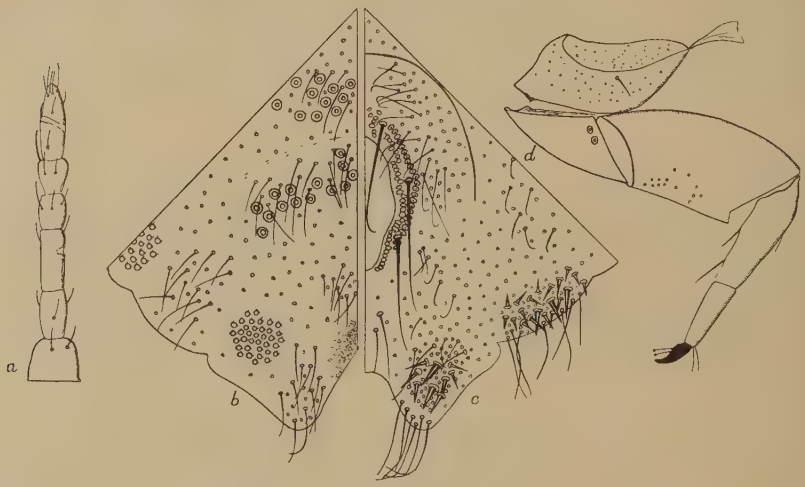


Fig. 1.—*Paraputo multispinosa*, sp. n. *a*, antenna × 57 diams.; *b*, posterior segments of abdomen, venter × 150 diams.; *c*, posterior segments of abdomen, dorsum × 150 diams.; *d*, posterior limb × 57 diams.

The segments of the legs are in the proportions of :—

	Trochanter.	Femur.	Tibia.	Tarsus.	Claw.
Fore limb . .	38	66	34	19	11
Mid limb . .	38	64	32	19	10
Hind limb . .	43	68	40	21	10

Both pairs of spiracles large with clusters of pores adjacent to stigmata. Anal lobes well developed; anal lobe setae absent, anal ring setae six in number short and stout. Embryos reach advanced stage of development before oviposition, but owing to the dried condition of the material before mounting morphological details were not observable.

Length of body varies from 3·0 to 3·9 mm.; breadth 2·8 to 3·5 mm.

The main feature distinguishing this species from *P. ritchiei*, Lg., the only other member of the genus, is the markedly greater number of conical spines present on the posterior six pairs of cerarii, viz. :—

	P. multispinosa.	*P. ritchiei.*
Last pair of cerarii . . .	8–11	7
2nd last pair of cerarii . . .	20–24	15–17
3rd „ „ . . .	23–26	15–17
4th „ „ . . .	16–27	15–17
5th „ „ . . .	18–22	11–13
6th „ „ . . .	13–15	11–13

Other significant differences are the absence of translucent pores on the hind femora and their restriction to the basal region of the hind coxae in *P. ritchiei*; also a bunch of from 5–7 rather long and stout setae which occurs on the postero-dorsal aspect of each paranal lobe in *P. multispinosa* is absent in *P. ritchiei*.

Kenya: Makuyu (*Major Barry Johnston*).

Type locality:—Kenya: Kitito, Ukamba Province, on ornamental plant.

Pseudococcus, Westd.

Pseudococcus **kikuyuensis,** sp. n. (fig. 2).

The adult female elongate oval in outline; coated with white wax; two longitudinal rows of impressed dots divide the dorsum into a median and two lateral areas; all marginal tassels long but anal pair disproportionately so and may exceed length of body; segmentation clearly defined; body colour dark red.

With seventeen pairs of cerarii; the cerarian spines occur as follows: (1) 5, (2) 3, (3) 2, (4) 2, (5) 2, (6) 3, (7) 2, (8) 3, (9) 3, (10) 2, (11) 2, (12) 2, (13) 2, (14) 2, (15) 2, (16) 2, (17) 2; the spines of the paranal cerarii slightly larger than those of the cerarii immediately anterior to them and there is a progressive diminution in size anteriorly, all cerarii except the interantennals, with long auxiliary setae; paranal and penultimate pairs of cerarii situated on chitinised areas of derm. *Setae* of dorsum rather scanty; setae of venter more numerous and of two types; (1) setae as long as dorsal setae; (2) setae about twice length of dorsal setae. Circular multilocular pores confined to venter of last 4 or 5 abdominal segments; large tubular ducts present. Anterior and posterior dorsal ostioles small but clearly marked. *Antennae* relatively long and slender with eight segments in the following relative proportions: (1) 26, (2) 26, (3) 27, (4) 20, (5) 19, (6) 16, (7) 17, (8) 35. Rostrum dimerous. Legs normal with segments in the following proportions:—

	Trochanter.	Femur.	Tibia.	Tarsus.
Fore limb . . .	35	93	80	33
Mid limb . . .	39	108	95	35
Hind limb . . .	42	112	125	42

Both pairs of digitules knobbed and longer than claw; knobs of unguals larger than those of tarsals; translucent pores present on coxae and tibiae of posterior limbs (fig. 1, *d*) and anal ring setae about equal in length to anal lobe setae.

Length of body 4·10 mm.; breadth 1·60 mm.

Although this species belongs to the same group within the genus as *P. maritimus*, Ehrh., it can be readily distinguished from the latter in life by the entirely different pattern formed by the wax on the dorsum. Moreover, this difference in the character of the secretionary covering can be correlated with certain distinctive features in the chitinous morphology.

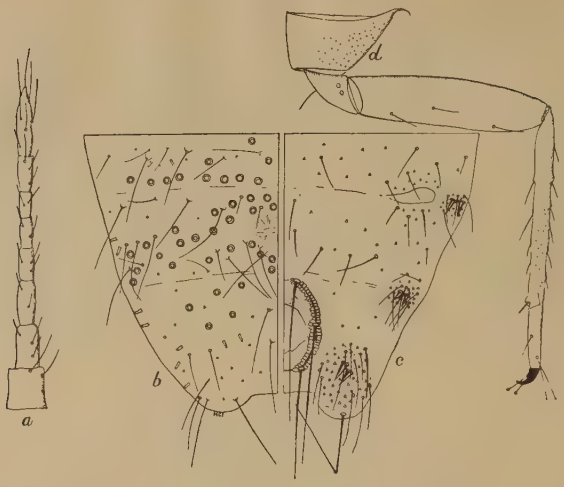


Fig. 2.—*Pseudococcus kikuyuensis*, sp. n. *a*, antenna × 57 diams.; *b*, posterior segment of abdomen, venter × 150 diams.; *c*, posterior segments of abdomen, dorsum × 150 diams.; *d*, posterior limb × 57 diams.

Firstly, the auxiliary setae especially of the penultimate and paranal pairs of cerarii are strikingly longer and more numerous than those of *maritimus*; secondly, the body setae, especially on the venter, are longer and more numerous in *kikuyuensis*; and, thirdly the pairs of cerarii nos. 6, 8 and 9 (commencing to count from the anterior end) have three well-formed conical spines per cerarius whilst the corresponding cerarii of *maritimus* have only two. Mr. F. Laing considers that *P. kikuyuensis* is "*P. maritimus*, Ehrh., down to the leg measurements." Without going once again into the now somewhat time-worn question of the value of leg measurements as aids to the specific determination of mealybugs, it is sufficient to point out that leg measurements are particularly inapplicable in this case since the legs of *P. maritimus* are notoriously variable in size.

Kenya: Komothai, Kikuyu Reserve. Foliage of *Canthium nitens*.

Pseudococcus **erigeroni,** sp. n. (fig. 3).

Adult female broadly ovate; coated with white wax, not arranged in a definite pattern; marginal tassels short; body colour orange-brown.

With from 13–15 cerarii; occasionally seventeen can be distinguished, but this is rare since there is always some obliteration anteriorly. No cerarius with more than two spines, and there is a progressive reduction in size of latter anteriorly; reduction to one spine not infrequent, aggregates of triangular pores around cerarian spines small but definite. Auxiliary setae absent except in vicinity of paranal lobe cerarii. Body *setae* short and very scanty on dorsum; longer and more numerous ventrally especially in the cephalic and abdominal regions, pairs of stout setae project from the margins of each of the last three or four abdominal segments. *Circular multilocular pores* present on ventral aspect of all abdominal segments; numerous tubular ducts open on to derm in the same region. Lips

of anterior and posterior ostioles tumid; ventral cicatrice absent. *Antennae* stout, eight segmented in the following proportions: (1) 8, (2) 8, (3) 6, (4) 6, (5) 6, (6) 4, (7) 5, (8) 14·5. Eyes large, protuberant and pigmented. Rostrum dimerous, short and broad; terminal segment much the longer. Legs long and stout; translucent pores on femora and tibiae of hind limbs; ungual digitules stout slightly longer than claw and with capitate extremities; tarsals filiform and minutely knobbed. Anal lobe setae stouter and longer than anal ring setae.

Length 1·80 to 2·50 mm.; breadth 0·90 mm. to 1·60 mm.

Mr. Laing considers that the above species is "a local race of *P. eriogoni*, Ehrh." The writer, however, bases the specific identity of *P. erigeroni* on the following points.

(1) *P. erigeroni* possesses at least thirteen well-formed cerarii whereas *P. eriogoni* has only nine or ten pairs (including the ocular pair).

(2) The groupings of pores around the cerarii though small are definite. There are no such groupings in *eriogoni*.

(3) A long stout seta arises from each margin of the last three or four abdominal segments in *erigeroni*. These are absent in *eriogoni*.

(4) The adult female of *erigeroni* is never either wholly or partially enclosed in a sac of wax during life as is recorded of the corresponding stage of *eriogoni*.

KENYA: Kericho. *Erigeron linifolium* (rhizomes and roots).

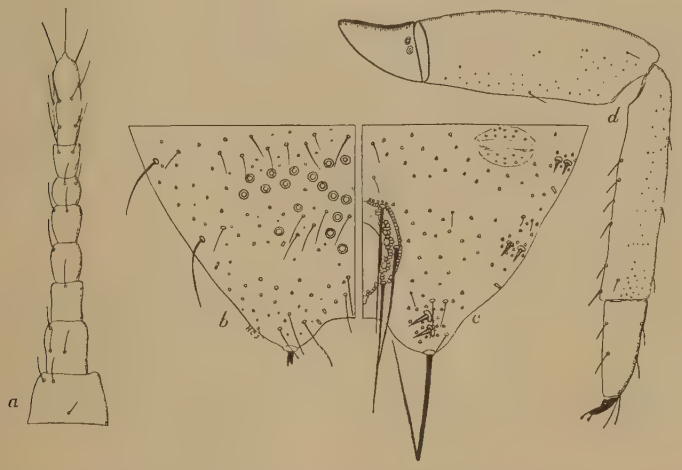


FIG. 3.—*Pseudococcus erigeroni*, sp. n. *a*, antenna × 57 diams.; *b*, posterior segments of abdomen, venter × 150 diams.; *c*, posterior segments of abdomen, dorsum × 150 diams.; *d*, posterior limb × 57 diams.

WEITERE NEUE UND WENIG BEKANNTE EXOTISCHE AKALYPTRATEN (DIPT.) DES BRITISH MUSEUM

Von Dr. Oswald Duda.

(*Gleiwitz.*)

Chloropidae

1. *Scoliophthalmus* **micantipennis,** sp. n. ♂♀.

Becker hat in seiner Monographie der Chloropidae der aethiopischen Region auf drei Arten von *Scoliophthalmus* aus Aegypten hingewiesen: *trapezoides*, *obliquus* und *arabicus*, die er in der Monographie der Chloropiden der palaearktischen Region (1910) auf Seite 129 beschrieben hat. Von diesen hat *trapezoides* (Typus von *Scoliophthalmus*) eine ausserhalb des Stirndreiecks *matte* Stirn und ein weisslich behaartes Mesonotum. die c erreicht nicht die m. *S. obliquus* und *arabicus* haben eine fettig glänzende Stirn, und die c erreicht die m. Ich habe diese Arten in " (1933) *Die Fliegen der pal. Region* Chloropidae: 103, zum subgen. *Anacamptoneurum*, Beck., bezogen. Auch bei *micantipennis* reicht die c bis zur m, doch hat *micantipennis* eine ausserhalb des Stirndreiecks *matte* Stirn, entfernt sich also mehr wie *Anacamptoneurum*, Beck., von *Goniopsita*, Duda, und ist unbedenklich als *Scoliophthalmus* anzuerkennen, wenn man (analog *Dicraeus*) auch Arten zu *Scoliophthalmus* bezieht, bei denen die c bis zur m reicht.

S. micantipennis hat ein *S. micans*, Lamb, sehr ähnliches Flügelgeäder. Lamb schreibt zu *micans*—*Notes on Exotic Chloropidae, Pt. II*, 1918, *Ann. Mag. nat. Hist.* (9) **1**: 331—" This is a small shining species from S. India, belonging to the *trapezoides* section, which must be close to *S. albipennis*, though quite distinct." *S. albipennis*, Beck., aus Formosa hat wie *trapezoides*, Beck., ein weisslich bis fahlgelb behaartes Mesonotum und Abdomen. Die Queradern sind nach Becker nur um die Länge der hinteren Querader voneinander entfernt, bzw. ta–tp ist = tp. Bei *micans*, Lamb, und *micantipennis*, sp. n. ist ta–tp mindestens $1\frac{1}{2}$ mal so lang wie tp. Auch ist die Behaarung nicht weisslich sondern braun bis schwarz. Lamb schreibt aber zu *micans*: " Thorax: dorsum . . . with . . . fairly long brown hair, especially so behind " und " Abdomen . . . with fairly long pale hairs, especially at the sides and on the male hypopygium," wahrend bei *micantipennis* Mesonotum und Abdomen (Abgesehen von den regulären Ma) gleichmassig sehr kurz und dunkel behaart sind. Auch ist die Beinfärbung eine andere, bei *micans* " predominantly dullish orange," und an den Hintertarsen sind nur die Endglieder verdunkelt.

Bei *micantipennis* sind die Beine überwiegend schwarz und an den Hintertarsen sind die drei letzten Glieder schwarz. Etwaige sonstige Unterschiede werden sich sicher erst durch Typenvergleich ergeben.

Beschreibung: Kopf wenig breiter als der Thorax, etwa so lang wie hoch und ganz schwarz. Gesicht glänzend, rundlich, etwas ausgehöhlt, medial sehr niedrig gekielt. Stirn deutlich länger als breit, nach hinten sich verbreiternd, ausserhalb des Stirndreiecks matt. Stirndreieck glänzend, bis zum Stirnvorderrand reichend, hinten etwa $\frac{2}{3}$ so breit wie die Stirn, auf der Stirnmitte etwa halb so breit wie die Stirn; seine Seitenränder hinten gerade, vorn etwas konvex begrenzt. Im übrigen ist das Stirndreieck mehr oder weniger gewulstet, dicht gerunzelt (chagriniert) und längs der Seitenrander mit zahlreichen schwarzen Haaren (if) besetzt. Orb wie die if, sehr zahlreich und gleichmässig stark. oc, vt und pvt (wie gewöhnlich) starker entwickelt als die if und orb. Augen praktisch kahl, mit halbrechtwinkelig geneigtem Längsdurchmesser. Backen glänzend schwarz, hinten sehr breit, nach vorn sich verschmälernd, aber auch vorn noch deutlich breiter als das 3. Fühlerglied. vi deutlich stärker als die zahlreichen pm. Rüssel und Taster schwarz; ersterer ziemlich dick, mit mässig langen Labellen. Fühler überwiegend rotgelb; 3. Glied mit beilförmig verlängerter Oberecke, oft nur basal unten rotgelb, sonst schwärzlich. ar sehr zart, kahl; nur bei einem der vorliegenden Exemplare ist eine ar erhalten.

Thorax glänzend schwarz. Mesonotum gleichmässig gewölbt, unbereift, mässig dicht und fein punktiert und gleichmässig kurz schwärzlich behaart. Mittlere a.Mi, intermediäre a.Mi und d.Mi fehlend. prsc. dc und übrige Ma regulär vorhanden, schwarz und langhaarig. Pleuren unbereift. Schildchen gewölbt, über halb so lang wie basal breit, abgerundet dreieckig, dorsal etwas gröber punktiert als das Mesonotum und wie dieses behaart. ap. sc und la. sc in gleichen Abständen einander nahe inseriert. ap. sc etwa so lang wie das Schildchen: la. sc etwa $\frac{1}{3}$ so lang wie die ap. sc und doppelt so lang wie die übrigen lateralen Härchen des Schildchens.

Abdomen glänzend schwarz oder schwarzbraun, unbereift, dicht und kurz schwärzlich behaart. 5. Segment des ♂ breiter und kürzer als das des ♀. After des ♂ klein, ohne sichtbare Genitalanhänge. Legeröhre des ♀ kurz, nach unten gekrümmt, apikal sehr kurz behaart, lateral mit wenigen unscheinbaren abstehenden Härchen.

Beine überwiegend glänzend schwarz; nur Schenkelringe, Kniespitzen und äusserste Anfänge und Enden der t rotgelb. Tarsen rotgelb, doch die vorderen und mittleren mehr oder weniger verdunkelt. mt_3 und 2. Glied der Hintertarsen hellrotgelb; 3. bis 5. Glied schwarz.

Flügel farblos. Adern schwarz, doch am basalen Flügeldrittel blass. c bis zur m reichend. mg_1 bis mg_4 graduell kürzer werdend. r_3 apikal sanft zur c aufgebogen. r_5 und m weithin gerade und parallel, doch r_5 apikal etwas divergent bzw. eine Spur zur c aufgebogen. m hinter der Flügelspitze endend. ta und tp stark nach hinten konvergent. ta tp $1\frac{1}{2}$ bis $1\frac{3}{4}$ mal so lang wie tp und etwas kürzer als der Endabschnitt der cu. R nicht verbreitert.—Schwinger schwarz.—Körperlänge $1\frac{1}{2}$–2 mm.

Nach einigen Exemplaren des British Museum: "Tanganyika: T. Mwanza, iv.1934 (*W. V. Harris*). Larva attacks young shoots of Sorghum. 1839."

2. *Formosina* **cardami**, sp. n. ♀.

Eine stattliche Art aus der Gruppe der Arten mit behaartem Mesonotum, und von *F. gigas*, Beck., wesentlich nur durch konstant andere Färbung verschieden.

Kopf höher als lang, etwa so breit wie der Thorax. Gesicht hellgelb, durch dichte gelbe Bereifung matt, an der Unterhälfte flach, an der oberen schmal und niedrig gekielt. Stirn länger als briet, mit parallelen Seitenrändern, gelbbraun. fr fehlend. Stirndreieck gewölbt, glatt, glänzend, unbereift, am Scheitel bis oder fast bis an die Augen heranreichend

vorn abgerundet den Stirnvorderrand erreichend, abgesehen von einem gelben keilförmigen Fleck seitlich des Ocellenflecks, ganz schwarz. Ocellenfleck ebenfalls schwarz. if randständig, minutiös; oc, vt und pvt ebenfalls mikroskopische schwer wahrnehmbar. Occiput überwiegend schwarz, in Fortsetzung der gelben Stirndreiecksflecken an "Ausschnitt" mit lateralen gelben Flecken, unten hinter den Augen mit gelben Randstreifen. Augen kahl, mit senkrechtem Längsdurchmesser. Backen gelb oder medial mehr oder weniger schwarz, sehr schmal. vi und pm fehlend. Taster und Rüssel schwarz; Labellen oft braun, rübenförmig, lang behaart. Fühler rotbraun, doch 2. Glied mit einem dorsalen schwarzen Längsstrich und 3. Glied dorsal und apikal breit schwarz gesäumt; 3. Glied oval, etwa $1\frac{1}{3}$ mal so lang wie breit. ar braun, kahl.

Thorax unbereift, glänzend schwarz, doch jederseits in voller Ausdehnung der Mesopleuren hellgelb und oberhalb der Notopleuralnaht (zwischen Schulterbeulen und Quersutur) mit einem sich unmittelbar an den Mesopleuralfleck anschliessenden gleichfarbigen dreieckigen Fleck. Mesonotum ziemlich dicht matt punktiert und kurz und dunkel behaart. Ma am Thorax gänzlich fehlend. Schildchen über halb so lang wie basal breit, dreieckig, apikal schmal gerundet, dorsal weiss flach, zart und hell behaart, apikal in Form einer Mondsichel schwarz gefleckt, im Bereiche derselben jederseits mit 6 deutlichen, gedrängt stehenden, schwarzen Knötchen für die ap. sc und la. sc; ap. sc stachelig, etwa $\frac{1}{5}$ so lang wie das Schildchen; la. sc knapp halb so lang wie die ap. sc und zarter.

Abdomen glänzend, fein und ziemlich dicht, kurz, schwarz und gelb behaart. 1. Segment fast ganz gelb. 2. Segment gelb, mit jederseits mit einem dorsalen breitbasig dem Hinterrande aufsitzenden, zipfelförmigen, schwarzen Fleck, der lateral vorn den Vorderrand fast erreicht. 3. und 4. Tergit ganz schwarz. 5. Tergit mit schmalem lateralen gelben Vorder- und medialem, gelbem Hinterrandsaum. Legeröhre schwarz; ihre schmalen apikal äusserst kurz behaarten Endlamellen rotbraun. Hernite gelb. Hüften, Kniee, t_1, t_2 und Tarsen rotgelb. f und t_3 schwarz.

Flügel farblos. c bis zur r_1 schwarz, weiterhin (wie r_1) rotbraun und durch die r_1 erheblich verstärkt, im Bereiche von mg_4 verschwindend. mg_2 etwa doppelt so lang wie mg_3; mg_3 $1\frac{1}{2}$ mal so lang wie mg_4. r_3 vorn konvex geschwungen, apikal zur c aufgebogen. r_5 fast gerade, der Flügelspitze näher endend als m. m hinten sanft konkav geschwungen. ta und tp fast parallel. ta am 2. Drittel oder 3. Fünftel der Cd. ta–tp etwa doppelt so lang wie tp. tp fast so lang wie der Endabschnitt der cu.—Schwinger hellgelb.—Körperlänge 4–5 mm.

Nach 3♀♀ des British Museum: "South India: Valparai from Cardamum stems. 6. und 7.iii.32, No. 208, 1932."

Eutropha nicobarensis, Schin. [*Chlorops*] (1868) *Novara Reise:* 244, 37; de Meijere (1910): 150—Batavia; Duda (1934, *Fauna Sumatrensis*; 143—Pandjong Priok und Sadnek. Ich berichtige einen Druckfehler, *loc. cit.*: 143: Es sollte heissen: (8 b) statt (86)!

Ich fand unter den Determinanden des British Museums 1♂, 2♀♀: "278, D. 120, Manus, 1932 (*N. E. H. Caldwell*). Admiralty Is."

Madizidae (Milichiinae Beck.).

Milichiella tosi, Beck. (1907, *Ann. Mus. nat. Hung.* **5**: 536, 30—Seychellen Inseln.

Unter den Determinanden des British Museum fand ich 2♂♂, die zu Beckers Beschreibung passen, "No. 3835. S. Rhodesia: Salisbury, 10. Nov. 1934 (*A. Cuthbertson*). Swarming in sunshine."

GENERA AND TYPES OF THE LYMANTRIIDAE (HETEROCERA)

By C. L. Collenette, F.R.E.S.

Part 62 of the *Lepidopterorum Catalogus*, written by F. Bryk and edited by Embrik Strand, deals with the family Lymantriidae of the Heterocera. It is dated 15th September, 1934, but did not reach England until towards the end of March 1935.

For some time past I have been working on the preparation of a complete list of the generic names proposed in the Lymantriidae, together with the names of the genotypes. Its publication is now unnecessary, as the great majority of the genotypes are given in the volume under discussion. I have checked these through, and offer the additions and corrections which are given below.

The genera appear to have been arranged in natural sequence, a task which, apart from Kirby's Catalogue of 1892 and Swinhoe's "Revision" in 1922–23, has not been attempted previously for the world genera as a whole. Having studied the order in which they appear, I have regretfully come to the conclusion that I cannot personally accept the arrangement as a solution of this most difficult problem. To select a few examples, *Rhodesana*, *Dasylaelia* and *Dasychirana* are widely separated from *Dasychira*, *Polymona* from *Lymantria* and *Euproctoides* from *Euproctis*, although they appear to me to be nearly related. *Redoa*, *Dasychirinula* (pages 94 and 306) and *Numenoides* (pages 81 and 312) each appear in two places in the list!

Of the following lists, the most lengthy deals with genera in which the type is not specifically cited in the work under discussion. Its publication must not be regarded as a criticism, for the programme of the *Lepidopterorum Catalogus* does not require the citation of types. As regards the remaining lists, it should be remembered that they deal with nearly 400 pages of closely printed references, the compilation of which must have entailed a very great deal of methodical work, for which those who study the family will be duly grateful.

Genera, with Lymantriid types, not included in the work under discussion.*

Arna Walker, 1855, List Lep. Ins. B.M. **5** : 1176. Type *Arna apicalis* Walker, 1855.

Arnissa Walker, 1869, Char. Undescr. Lep. Het. : 76. Type *Arnissa simplex* Walker, 1869.

Axuenna Walker, 1865, List Lep. Ins. B.M. **32** : 382. Type *Eloria discalis* Walker, 1856.

Cassidia Walker, 1862, J. linn. Soc. Lond. (Zool.) **6** : 129. Type *Cassidia obtusa* Walker, 1862.

Charala Moore, 1884, Trans. ent. Soc. Lond. **1884** : 359. Type *Stilpnotia sericae* Moore, 1879.

Chrysocyma Hampson, 1905, Ann. Mag. nat. Hist. (7) **15** : 435. Type *Chrysocyma mesopotamia* Hampson, 1905. (Allied to *Leptaroa* Hampson, 1910.)

Cymaroa Hampson, 1905, Ann. S. Afr. Mus. **3** : 410. Type *Cymaroa leptopepla* Hampson, 1905.

Dasychoproctis Hering *in* Seitz, 1926, Grossschmett. Erde, **14** : 151. Type *Dasychoproctis dubiosa* Hering, 1926.

* In all the following references, types were fixed at the time of the creation of the genus unless otherwise stated.

Dicranuropsis Felder & Rogenhofer, 1875, Reise Novara (Zool.) (2) 2 Lep. **5**, pl. 100, fig. 7. Type *Dicranuropsis vilis* Felder & Rogenhofer, 1875.

Erasta Gistl, 1848, Nat. Thierr. : 9. Type *Phalaena monacha* Linnaeus, 1758. (Nom. nov. for *Liparis* Ochsenheimer, 1810, preoccupied.)

Homochira Hampson, 1905, Ann. S. Afr. Mus. **3** : 409. Type *Dasychira rendalli* Distant, 1897.

Leptaroa Hampson, 1910, Proc. zool. Soc. London, **1910** : 456. Type *Leptaroa fulvicolora* Hampson, 1910.

Leucosia Rambur, 1866, Cat. Syst. Lep. d'Andalusie, **2** : 266. Type *Phalaena salicis* Linnaeus, 1758. Preoccupied by *Leucosia* Weber, 1795, Nomen. Fabricii : 92.—Crustacea.

Micraroa Hampson, 1905, Ann. S. Afr. Mus. **3** : 404. Type *Micraroa rufescens* Hampson, 1905.

Micropterogyna Rambur, 1866, Cat. Syst. Lep. d'Andalusie, **2** : 281. Type *Phalaena antiqua* Linnaeus, 1758.

Nymphyxis Grote, 1895, Mitt. Mus. Hildesheim, **1** : 4. Type *Phalaena salicis* Linnaeus, 1758. (Nom. nov. for *Leucoma* Stephens, 1828.)

Ocybola Turner, 1912, Mem. nat. Mus., Melbourne, **4** : 20. Type *Orgyia semifusca* Walker, 1869.

Olenoptera Herrich-Schäffer, 1856, Aussereurop. Schmett. **1** : 11 and fig. 523. Type *Olenoptera flavilimbata* Herrich-Schäffer, 1856.

Parocneria Dyar, 1897, Canad. Ent. **29** : 13. Type *Phalaena bombyx detrita* Esper, 1785.

Porthesaroa Hering *in* Seitz, 1926, Grossschmett. Erde, **14** : 151. Type *Porthesaroa aureopsis* Hering, 1926.

Sminthopses Hampson, 1926, Descr. Gen. Spec. Noctuinae : 528. Type *Sminthopses aeschra* Hampson, 1926.

Suarezia Hering *in* Seitz, 1926, Grossschmett. Erde, **14** : 151. Type *Suarezia bipuncta* Hering, 1926.

Thylacigyna Rambur, 1866, Cat. Syst. Lep. d'Andalusie, **2** : 283. Type (fixed by Kirby, 1870, in Zool. Record, **1869** : 389) *Orgyia ericae* Heyer *in* Germar, [1825].

Trochuda Schaus, 1904, Trans. Amer. ent. Soc. **30** : 140. Type *Trochuda bilinea* Schaus, 1904.

Genera wrongly included in the Lymantriidae.

Aza Walker, 1865, List Lep. Ins. B.M. **32** : 384. Type *Aza micacea* Walker, 1865. Type (in British Museum) is a Bombycid.

Bifurca Joannis, 1930, Ann. Soc. ent. France, **1929** : 781. Type *Bifurca longinasus* Joannis, 1930. Type is a Hypenid.

Nyctemera Hübner [1822], Verz. bekannt. Schmett. (11) : 178. Type (fixed by Hampson, 1894, Fauna Br. India, **2** : 46) *Phalaena lacticinia* Cramer, 1777, Uitl. Kapellen, **2** : 47. Type is an Arctiid.

Thiacidas Walker, 1855, List Lep. Ins. B.M. **5** : 1027. Type *Thiacidas postica* Walker, 1855. Type is a Noctuid, *see* Dyar, 1897, Canad. Ent. **29** : 12.

Genera in which the type appears to have been wrongly cited in the work under discussion.

Liparis Ochsenheimer, 1810, Schmett. Eur. **3** : 186. Type (fixed by Swinhoe, 1923, Ann. Mag. nat. Hist. (9) **11** : 424) *Phalaena monacha* Linnaeus, 1758. (Not *L. morio* Linnaeus.) Preoccupied by *Liparis* Scopoli, (ex Artedi) 1777, Introd. Hist. Nat. : 453.—Pisces.

Morasa Walker, 1855, List Lep. Ins. B.M. **4** : 859. Type (fixed by Hampson, 1905, Ann. S. Afr. Mus. **3** : 410) *Morasa modesta* Walker, 1855. (Not *M. lorimeri* Butler.)

Porthesia Stephens, 1828, Ill. Brit. Ent. Haustellata, **2** : 65. Type (fixed by Westwood, 1840, Introd. class. Ins. **2** Syn. : 92) *Phalaena chrysorrhoea* Linnaeus, 1758. (Not *P. similis* Fuessly.)

Porthmeia Bethune-Baker, 1908, Novit. Zool., Tring, **15** : 186. Type *Porthmeia subnigra* Bethune-Baker, 1908. (Not *P. bicolora* Bethune-Baker.)

Corrections in original references of Genera.

Hypogymna Kirby & Spence, 1826, Introd. Ent. **3** : 102. Type *Phalaena dispar* Linnaeus, 1758.

Idalia Hübner, [1820], Verz. bekannt. Schmett. (10) : 149. Type *Bombyx regina* Stoll, 1780.

Laelia Stephens, 1828, Ill. Brit. Ent. Haustellata, **2** : 62. Type *Bombyx coenosa* Hübner, [1805].

Ornithopsyche Wallengren, 1863, Wien. ent. Mon. **7** : 143. Type *Ornithopsyche hypoxantha* Wallengren, 1863 (= *Aroa discalis* Walker, 1855).

Palasea Wallengren, 1863, Wien. ent. Mon. **7** : 142. Type *Palasea albimacula* Wallengren, 1863.

Pirga Aurivillius, 1891, Ent. Tidskr. **12** : 228, pl. 2. Type *Pirga mirabilis* Aurivillius, 1891.

Stracilla Aurivillius, 1910, Sjöstedt's Kilimandjaro Exped. Lep. **9** : 22. Type *Leucoma translucida* Oberthür, 1880.

Generic name appearing for the first time in the work under discussion, but not appearing under *Nomina Nova* on page 357.

Pseudobazisa Bryk, 1935. Type *Aroa perculta* Distant, 1897.

Genera in which the type is apparently cited for the first time in the work under discussion.

Apterogynis Guenée, 1875, Statist. Sci. d'Eure & Loire, 78. Type *Phalaena antiqua* Linnaeus, 1758.

Heteronygmia Holland, 1893, Psyche, Camb., Mass. **6** : 414. Type *Heteronygmia rhodapicata* Holland, 1893.

Marblepsis Hering *in* Seitz, 1926, Grossschmett. Erde, **14** : 158. Type *Marblepsis pirgula* Hering, 1926.

Genera in which the type does not appear to have been cited previously in any work, and which is now fixed for the first time.

Cladophora Geyer *in* Hübner, 1832, Zuträge z. exot. Schmett. **4** : 33. Species included :—*Cladophora leucographa* Geyer, 1832 (= *Phalaena leucostigma* Abbot & Smith, 1797); *Phalaena selenitica* Esper, 1789. Type now fixed, *Phalaena selenitica* Esper, 1789. *Cladophora* Geyer therefore sinks to *Gynaephora* Hübner [1822].

Dicallomera Butler, 1881, Trans. ent. Soc. London, **1881** : 12. Species included :—*Phalaena fascelina* Linnaeus, 1758; *Phalaena leucophaea* Abbot & Smith, 1797. Type now fixed, *Phalaena fascelina* Linnaeus, 1758.

Sericaria Berthold *in* Latreille, 1827, Nat. Fam. Thierr. : 480. Restricted by Latreille *in* Cuvier, 1829, R. Anim. (ed. 2) **5** : 404, to the following species :— *Phalaena dispar* Linnaeus, 1758; *Phalaena versicolora* Linnaeus, 1758; *Phalaena bucephala* Linnaeus, 1758; *Phalaena coryli* Linnaeus, 1758; *Phalaena pudibunda* Linnaeus, 1758; *Bombyx abietis* Denis & Schiffermüller, 1775; *Bombyx anachoreta* Denis & Schiffermüller, 1775; *Bombyx pityocampa* Denis & Schiffermüller, 1775. Type now fixed, *Phalaena dispar* Linnaeus, 1758. *Sericaria* Berthold therefore sinks to *Porthetria* Hübner, [1820].

GENERA IN WHICH THE TYPE IS NOT SPECIFICALLY CITED IN THE WORK UNDER DISCUSSION.

Acnissa Turner, 1902, Trans. roy. Soc. S. Aust. **26** : 180. Type *Acnissa pyrrhias* Turner, 1902.

Acyphas Walker, 1855, List Lep. Ins. B.M. **4** : 797. Type (fixed by Kirby, 1892, Syst. Cat. Lep. Het. **2** : 472). *Acyphas fusca* Walker, 1855.

Adlullia Walker, 1865, List Lep. Ins. B.M. **32** : 392. Type (fixed by Kirby, 1892, Syst. Cat. Lep. Het. **2** : 497) *Adlullia lunifera* Walker, 1865.

Anaxila Walker, 1855, List Lep. Ins. B.M. **4** : 810. Type *Anaxila plagiata* Walker, 1855.

Anchyneura Felder, 1861, SitzBer. Akad. Wiss. Wien, **43** (1) : 33. Type *Anchyneura praeusta* Felder, 1861.

Anthelymantria Strand *in* Seitz, 1925, Grossschmett. Erde, **10** : 363. Type *Anthelymantria bistigmalis* Strand, 1925.

Arestha Walker, 1855, List Lep. Ins. B.M. **4** : 805. Type *Arestha antica* Walker, 1855 (= *Bombyx pennatula* Fabricius, 1793).

Argila Walker, 1855, List Lep. Ins. B.M. **4** : 810. Type *Argila basalis* Walker, 1855.

Athrula Walker, 1862, Trans. ent. Soc. Lond. (3) **1** : 82. Type *Athrula saturnioides* Walker, 1862.

Bathmochtha Karsch, 1895, Ent. Nachr. **21** : 368. Type *Bathmochtha albilunata* Karsch, 1895.

Birnara Butler, 1879, Trans. linn. Soc. Lond. Zool. (2) **1** : 560. Type *Birnara nubila* Butler, 1879.

Byrdia Schaus *in* Seitz, 1927, Grossschmett. Erde, **6** : 537. Type *Byrdia rossii* Curtis, 1835.

Cadrusia Moore, 1879, Desc. Ind. Lep. Coll. Atkinson, Het. : 54. Type *Cadrusia virescens* Moore, 1879.

Cadurca Swinhoe, 1906, Ann. Mag. nat. Hist. (7) **17** : 546. Type *Cadurca venata* Swinhoe, 1906.

Caenina Felder, 1861, SitzBer. Akad. Wiss. Wien, **43** (1) : 33. Type *Caenina lymantrioides* Felder, 1861.

Calliteara Butler, 1881, Trans. ent. Soc. Lond. **1881** : 12. Type (fixed by Kirby, 1892, Syst. Cat. Lep. Het. **1** : 470) *Dasychira argentata* Butler, 1881.

Cataphractes Felder & Rogenhofer, 1875, Reise Novara (Zool.) (2) 2 Lep. **5**, pl. 99, fig. 8. Type *Cataphractes holdingii* Felder & Rogenhofer, 1875.

Charnidas Walker, 1855, List Lep. Ins. B.M. **4** : 797. Type (fixed by Moore, 1883, Lep. Ceylon, **2** : 82) *Charnidas litura* Walker, 1855.

Choerotricha Felder & Rogenhofer, 1875, Reise Novara (Zool.) (2) 2 Lep. **5**, pl. 98, fig. 14. Type *Choerotricha glandulosa* Felder & Rogenhofer, 1875 (= *Gogana atrosquama* Walker, 1866).

Clethrogyna Rambur, 1866, Cat. Syst. Lep. d'Andalusie, **2** : 281. Type (fixed by Kirby, 1870, in Zool. Record, **1869** : 389) *Orgya splendida* Rambur, 1842.

Coryphyala Herrich-Schäffer, 1856, Aussereurop. Schmett. **1** : 18 and fig. 532. Type *Coryphyala orbigera* Herrich-Schäffer, 1856.

Crinola Leech, 1890, Entomologist, **23** : 111. Type *Crinola flavicollis* Leech, 1890. Preoccupied by *Crinola* Rafinesque, 1815, Analyse : 151.—Vermes.

Cycethra Bethune-Baker, 1904, Novit. Zool. **11** : 393. Type *Cycethra aroa* Bethune-Baker, 1904.

Daplasa Moore, 1879, Desc. Ind. Lep. Coll. Atkinson, Het. : 51. Type *Daplasa irrorata* Moore, 1879.

Darala Walker, 1855, List Lep. Ins. B.M. **4** : 886. Type (fixed by Kirby, 1892, Syst. Cat. Lep. Het. **2** : 806) *Darala ocellata* Walker, 1855.

Dasycampa Janse, 1915, Ann. Transv. Mus. **5** : 25. Type *Dasycampa ianthina* Janse, 1915. Preoccupied by *Dasycampa* Guenée, 1837, Ann. Soc. ent. Fr. **6** : 224.—Lepidoptera.

Dasychira Hübner, 1809, Samml. Exot. Schmett. **1** : pl. [178]. Type *Dasychira tephra* Hübner, 1809.

Dediama Walker, 1855, List Lep. Ins. B.M. **5** : 1074. Type *Dediama antica* Walker, 1855.

Dicreagra Felder & Rogenhofer, 1875, Reise Novara (Zool.) (2) 2 Lep. **5**, pl. 100, fig. 2. Type *Dicreagra ochrocephala* Felder & Rogenhofer, 1875.

Dulichia Walker, 1855, List Lep. Ins. B.M. **4** : 809. Type *Dulichia fasciata* Walker, 1855. Preoccupied by *Dulichia* Krøyer, 1845.—Crustacea.

Elkneria Börner *in* Brohmer, 1932, Fauna Deutschland, ed. **4** : 393. Type *Phalaena pudibunda* Linnaeus, 1758.

Eudasychira Möschler, 1887, Abh. Senckenberg. Naturf. Ges. **15** : 75. Type *Eudasychira quinquepunctata* Möschler, 1887.

Gynaephora Hübner, [1822], Verz. bekannt. Schmett. (10) : 161. Type (fixed by Kirby, Syst. Cat. Lep. Het. **2** : 473) *Bombyx selenitica* Esper, 1789.

Ilema Moore, 1858, Cat. Lep. Ins. E.-I. House, **2** : 341. Type *Melia costalis* Walker, 1855. Nom. nov. for *Melia* Walker, 1855, preoccupied.

Lacida Walker, 1855, List Lep. Ins. B.M. **4** : 801. Type (fixed by Swinhoe, 1923, Ann. Mag. nat. Hist. (9) **11** : 89) *Lacida antica* Walker, 1855.

Laelioides Moore, 1883, Lep. Ceylon, **2** : 83. Type *Laelioides fasciata* Moore, 1883.

Leucoma Stephens, 1828, Ill. Brit. Ent. Haustellata, **2** : 63. Type (fixed by Westwood, 1840, Introd. class. Ins. **2** Syn. : 92) *Phalaena salicis* Linnaeus, 1758.

Lopera Walker, 1855, List Lep. Ins. B.M. **4** : 919. Type *Lopera squamosa* Walker, 1855.

Melia Walker, 1855, List Lep. Ins. B.M. **4** : 808. Type *Melia costalis* Walker, 1855. Preoccupied by *Melia* Bosc, 1813.—Crustacea.

Microgymna Wallengren, 1865, K. svenska Vetensk. Akad. Handl. (2) (**5**) 4 : 38. Type *Liparis picta* Boisduval, 1847.

Nagunda Moore, 1879, Desc. Ind. Lep. Coll. Atkinson, Het. : 53. Type *Alope semicincta* Walker, 1855.

Neorgyia Bethune-Baker, 1908, Novit. Zool., Tring, **15** : 188. Type *Neorgyia ochracea* Bethune-Baker, 1908.

Newmania Swinhoe, 1892, Cat. Lep. Het. Mus. Oxford, **1** : 199. Type *Teara guenéi* Newman, 1856.

Nioda Walker, 1855, List Lep. Ins. B.M. **5** : 1069. Type *Nioda fusiformis* Walker, 1855.

Notohyba Holland, 1893, Psyche, Camb., Mass. **6** : 434 and 351. Type *Notohyba nubifuga* Holland, 1893.

Nygmia Hübner, [1822], Verz. bekannt. Schmett. (12) : 193. Type (fixed by Kirby, 1892, Syst. Cat. Lep. Het. **1** : 447) *Phalaena icilia* Stoll, 1790.

Odagra Walker, 1865, List Lep. Ins. B.M. **32** : 401. Type *Odagra devestita* Walker, 1865.

Oecura Holland, 1893, Psyche, Camb., Mass. **6** : 389. Type *Oecura goodii* Holland, 1893.

Orgyia Ochsenheimer, 1810, Schmett. Eur. **3** : 208. Type (fixed by Curtis, 1831, Brit. Ent. **8** : 378) *Phalaena antiqua* Linnaeus, 1758.

Parorgyia Packard, 1864, Proc. ent. Soc. Philad. **3** : 332. Type *Phalaena achatina* Abbot & Smith, 1797.

Pegella Walker, 1866, List Lep. Ins. B.M. **35** : 1922. Type *Pegella curvifera* Walker, 1866.

Penora Walker, 1855, List Lep. Ins. B.M. **4** : 821. Type (fixed by Schaus *in* Seitz, 1927, Grossschmett. Erde, **6** : 560) *Penora remota* Walker, 1855.

Penthophera Germar, 1812, Syst. Gloss. Prodr. : 33. Type (fixed by Rambur, 1866, Cat. Syst. Lep. d'Andalusie **2** : 273) *Phalaena morio* Linnaeus, 1767.

Phiditia Möschler, 1883, Verh. zool.-bot. Ges. Wien, **32** : 338. Type *Phalaena diores* Cramer, 1775.

Porthetria Hübner, [1820], Verz. bekannt. Schmett. (10) : 160. Type *Phalaena dispar* Linnaeus, 1758.

Procodeca Walker, 1855, List Lep. Ins. B.M. **4** : 812. Type *Procodeca quadrata* Walker, 1855.

Pseudodreata Bethune-Baker, 1904, Novit. Zool. **11** : 371. Type *Pseudodreata strigata* Bethune-Baker, 1904.

Pseudonotodonta Möschler, 1887, Abh. Senckenberg. Naturf. Ges. **15** : 76. Type *Pseudonotodonta virescens* Möschler, 1887.

Psilura Stephens, 1828, Ill. Brit. Ent. Haustellata, **2** : 57. Type *Phalaena monacha* Linnaeus, 1758.

Pygetera Kirby, 1892, Syst. Cat. Lep. Het. **1** : 446. Type *Cataphractes holdingii* Felder and Rogenhofer, 1875. Nom. nov. for *Cataphractes* Felder & Rogenhofer, 1875. Not required.

Pyramocera Butler, 1880, J. linn. Soc. Lond. (Zool.) **15** : 85. Type *Pyramocera fuliginea* Butler, 1880.

Ricine Walker, 1855, List Lep. Ins. B.M. **4** : 824. Type *Ricine suffusa* Walker, 1855.

Rilia Walker, 1855, List Lep. Ins. B.M. **5** : 1075. Type *Rilia lanceolata* Walker, 1855.

Sarothropyga Felder & Rogenhofer, 1875, Reise Novara (Zool.) (2) 2 Lep. **5** pl. 100, fig. 23. Type *Sarothropyga rhodopepla* Felder & Rogenhofer, 1875 (= *Morasa modesta* Walker, 1855).

Somena Walker, 1856, List Lep. Ins. B.M. **7** : 1734. Type *Somena scintillans* Walker, 1856.

Thamnocera Holland, 1893, Psyche, Camb., Mass. **6** : 454 and 469. Type *Thamnocera albilinea* Holland, 1893.

Thelde Walker, 1862, J. linn. Soc. Lond. (Zool.) **6** : 139. Type *Thelde patula* Walker, 1862.

Turriga Walker, 1869, Char. Undescr. Lep. Het. : 15. Type *Turriga invasa* Walker, 1869.

Utidava Walker, 1862, List Lep. Ins. B.M. **26** : 1689. Type *Utidava incomptaria* Walker, 1862.

THE THYSANOPTEROUS GENUS *ACTINOTHRIPS*

By J. Douglas Hood, Ph.D.

(*Professor of Zoology, University of Rochester, U.S.A.*)

The kindness of Sir Guy A. K. Marshall in sending to me for determination a series of specimens of *Actinothrips*, taken in British Guiana by Dr. J. G. Myers, has led to a critical study of numerous specimens of this genus collected by Dr. C. B. Williams and Mr. F. W. Urich in Trinidad, and also of a large series taken in Panama in 1933. These studies have resulted in the differentiation of the two new species described below and in the presentation of the accompanying key to the known species.

Actinothrips, Bagnall.

The members of this genus are among the neotropical near-giants of the order, and measure from 5 to 7·5 mm. in length. They live usually in the folds of dead leaves and, as adults, have become specialised to feed largely, if not wholly, upon fungus spores. None of them lays eggs; embryonic life is passed within the body of the parent, and the young, when released, are active, restless little creatures which proceed at once to feed voraciously. Viviparity is here a two-fold adaptation: better protection is afforded the young during embryonic development, and when they start their own independent lives they are assured a suitable environment because the adults are active fliers and move at once from food-supplies which have become unfavourable. We should expect such viviparous species of thrips to maintain a given level of population with the production of fewer eggs than oviparous ones.

The genus lacks the internal chitinous masticatory apparatus of the fore-intestine which is such a prominent feature of the alimentary tract in the spore-feeders belonging to *Elaphrothrips*. Its type is *A. longicornis*, Bagnall, described from a single male—erroneously said by Bagnall to be a female—taken at Caracas, Venezuela. The species described below as *trichaetus* was distributed by me for some years under the name *longicornis*, but, if Bagnall's description is trustworthy, my material represents a very different insect. The differences between the several species—a number of them necessarily gleaned solely from the literature—are set forth in the following key.

Key to known species (♂♂ *and* ♀♀).

a. Fore femora with *three* large dark *subequal* setae in a transverse line near apex; seta on dorsum of antennal segment 1 never extending to apex of segment 2.

b. "Meso- and metascutum rather closely set with numerous short hairs"; "metascutum with a pair of erect tubercles, one on each side of mid-line near anterior margin, each armed with a long bristle" [his drawing shows these tubercles to be one-third as long as the setae which arise from them]; first antennal segments scarcely broader than least interval between them [according to figure]. Venezuela; 1 ♂, erroneously described as a ♀.] . . . . . *longicornis*, Bagnall.

bb. Mesonotum with a few short setae scattered in the postero-lateral region only, metanotum with three pairs of small setae in a close group at the antero-lateral margin; metanotal tubercles small,

scarcely distinguishable; first antennal segments about three times as broad as their least interval; larvae bright red with abdominal segments 2 and 3 wholly, and segments 6 and 7 largely, white or cream-coloured. [Trinidad, Panama, Ecuador; common.]
trichaetus, sp. n.

aa. Fore femora with *one* large dark seta on inner surface near apex, sometimes with two additional but much more slender setae forming a transverse row with the first; seta on dorsum of antennal segment 1 usually extending to apex of segment 2.

c. Head nearly 2·3 times as long as width across eyes; produced portion of head in front of eyes with parallel-sided basal part longer than diameter of posterior ocelli; postocular setae about attaining anterior margins of eyes; one pair of postocellar setae, these longer than diameter of posterior ocelli, the latter with centres opposite a line which would mark off anterior third of eyes; midlateral pronotal setae very much longer and stouter than anterior marginals; tube about 1·9 times as long as head, its longest clothing hairs twice as long as greatest width of tube; male with the three lateral setae at distal end of abdominal segment 8 long and slender, the upper (and most anterior) one longer than greatest width of tube. [Brazil, ♀, ♂.] . . . . *bondari*, Hood.

cc. Head about 2·13 times as long as width across eyes; produced portion of head in front of eyes with narrow basal part shorter than diameter of posterior ocelli; postocular setae never surpassing posterior ocelli; two or three pairs of postocellar setae, these shorter than diameter of posterior ocelli, the latter with their hind margins opposite centre of eyes; midlateral pronotal setae about comparable in size with anterior marginals; tube about 1·6 times as long as head, its longest clothing hairs shorter than greatest width of tube; male with the three lateral setae at distal end of abdominal segment 8 short and stout, the longest one much shorter than greatest width of tube; larvae with abdomen bright red, not banded with paler. [British Guiana; ♀, ♂.]
monochaetus, sp. n.

Actinothrips **trichaetus**, sp. n.

(Fig. 1, *a–d*.)

♀ (macropterous).—Length about 5 mm. (distended, about 5·7 mm.). *Colour* very dark, the head and thorax blackish-brown, the abdomen opaque coal black (after maceration in caustic, the abdomen beyond segment II remains opaque black, excepting the basal one-half or more of IX and the apex of tube, which are brown); legs blackish-brown, with all tarsi yellowish-brown; wings of both pairs with a heavy, nearly black, median vein extending to near tip and with nearly black fringing hairs, membrane of wings uniform in colour and just perceptibly washed with buff, save for their darker bases; antennae with segments I and II concolorous with head, III–VI largely yellow, shaded with dark brown or blackish-brown at extreme base, successively more deeply and broadly darkened with brown apically, III very lightly so and only in distal tapering portion, VI in distal third or more, VII and VIII nearly blackish-brown.

Head about 2·13 times as long as greatest width (which is across eyes) and about 2·7 times as long as median line of pronotum, its form and chaetotaxy well shown in fig. 1, *a*; produced portion in front of eyes not noticeably parallel-sided in the narrower basal part, this shorter than the diameter of posterior ocelli; cheeks narrowed shortly behind eyes and again near base, each with two very stout, prominent, dark setae arising from distinct tubercles, one pair just behind eyes, the other one-

third the length of cheeks from base; surface closely and lightly transversely striate, producing a slight serration of the anterior part of cheeks; postocular setae shorter than eyes, 90–140 μ long and usually about 80–90 μ apart at their bases, their slightly dilated, pale tips never surpassing posterior ocelli; one part of postocellar setae, their length somewhat greater than diameter of posterior ocelli, subequal in length to a pair at anterior angles of eyes, shorter than an indistinct anteocellar pair. *Eyes* about 0·28 as long as head and about 1·8 times as long as wide, their least interval appreciably greater than their greatest width. *Ocelli* of posterior pair with their hind margins just in advance of centre of eyes,

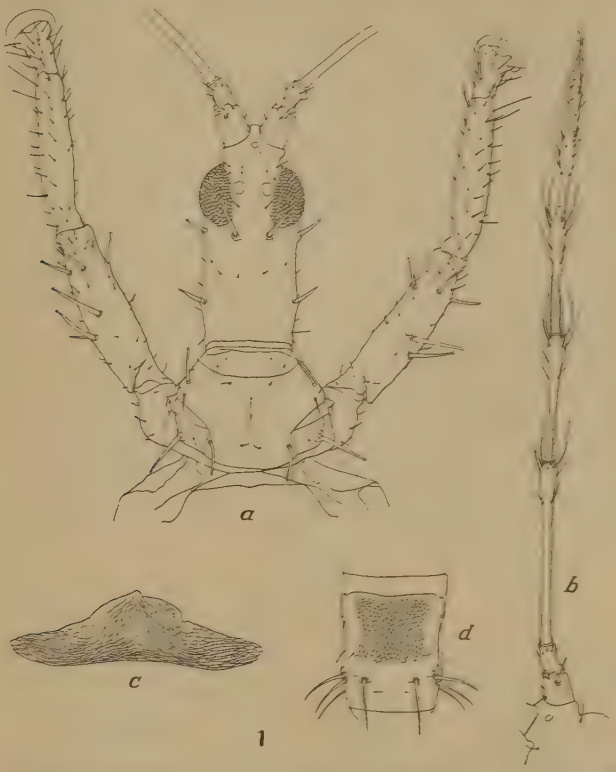


Fig. 1.—*Actinothrips trichaetus*, sp. n.: *a*, head and prothorax, ♀, paratype [Trinidad], all setae shown; *b*, right antenna, ♀, paratype [Trinidad]; *c*, abdominal tergum I, ♀, paratype [Barro Colorado Island, Panama]; *d*, abdominal tergum VIII, ♂, paratype [B.C.I., Panama].—Drawn by Mrs. Philip T. Bassett; camera lucida.

their diameter about 33 μ, interval 47 μ, distance from anterior ocellus 95 μ, the latter smaller and with its hind margin on a line with posterior lateral margin of first antennal segment. *Antennae* (fig. 1, *b*) long and slender, about 2·9 times the length of head; sense-cones long and slender, nearly indistinguishable from setae, disposed on the inner (outer) surfaces of the segments as follows: III 1(1), IV 1(2) — 1 ventral, V 1/1–1), VI 1/0–1, VII 1 dorsal. *Mouth-cone* reaching beyond middle of prosternum, semicircularly rounded at tip. *Prothorax* (fig. 1, *a*) about 2·5 times as broad across coxae as median length of

pronotum, with a short median apodeme in front of middle, its surface smooth, anterior and posterior margins of pronotum arcuate and concentric, epimeron and pronotum not fused; anterior marginal setae slender, pointed, about 30 μ; anterior laterals and the two posterior pairs long, dark brown, with slightly dilated, pale tips, the anterior laterals about 73–87 μ, epimerals 117–151 μ, posterior marginals 87–107 μ, all borne on low tubercles; midlaterals small, pointed, about 43 μ; coxa without strong setae. *Fore legs* (fig. 1, *a*) long and slender (normal to the genus) the fore femur with about seven major setae, all dark brown, with pale, slightly dilated tips, and arising from low tubercles, three of the setae forming a circlet near apex of femur, one of them on inner surface, one on outer surface, the other dorsal; fore tibia without strong setae; fore tarsus unarmed. *Wings* of nearly equal width throughout; fringe long and close, that on fore-wings double for 28–41 hairs (usually 30–33); subbasal setae on fore-wings about 70, 95 and 193 μ, respectively, all very slightly dilated and pale at tip. *Metathorax* with a pair of large dark setae which, in individuals of ordinary size, are about 168–196 μ long and 119–129 μ apart, these setae arising from low and scarcely distinguishable tubercles. *Abdomen* long and slender; tergum I (fig. 1, *c*) without differentiated shield-shaped area, the sculpture of the anterior median portion continuous with that of remainder of sclerite; setae moderately long, those on intermediate segments pale, nearly straight, and mostly blunt, those on IX sharply pointed and nearly black; one pair of brownish, sigmoid, wing-retaining setae. *Tube* about 1·8 times as long as head (1·76–1·83 in several specimens measured), sides nearly straight, covered with a number of slender, nearly black setae which are about as long as width of tube, densest at basal third of tube, absent from its extreme base and apex; terminal setae pale, about one-fourth as long as tube.

Measurements of ♀ (paratype), in mm.: Length about 4·86 (distended, about 5·7); head, length 0·595, greatest width (across eyes) 0·279, greatest width across cheeks (inclusive of tubercles) 0·267, least width near middle 0·241, least sub-basal width 0·238; eyes, length 0·168, greatest width 0·092, least interval 0·104; prothorax, median length of pronotum 0·220, width (inclusive of coxae) 0·546; pterothorax, width 0·742; abdomen, width 0·777; tergum VIII, median length 0·281, tergum IX 0·176; tube, length 1·05, greatest subbasal width 0·142, width at apex 0·083.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ):	110	87	469	316	302	196	106	140
Width (μ):	81	50*	50	48	46	37	31	24

Total length of antenna 1·73 mm.

♂ (macropterous).—Length about 5·6 mm. (distended, about 6·8 mm.). *Colour* as in female; structure very similar, differing from above description only as follows: *Head* about 2·38 times as long as median line of pronotum. *Antennae* fully three times the length of head. *Prothorax* longer, scarcely 2·3 times as broad across coxae as median length of pronotum; setae as in female, anterior marginals 44 μ, anterior laterals 73 μ, midlaterals 40 μ, epimerals 120 μ, posterior marginals 101 μ (in one specimen measured). *Fore femora* as in female, not enlarged; fore tarsi unarmed. *Abdomen* scarcely differing in form from that of female, excepting that the distal segments are more elongated (see measurements and fig. 1, *d*); sculpture of tergum I exactly as in female; segment VIII with the three setae on each side at distal end slender and finely pointed, the upper (and most anterior) one longer than width of tube (fig. 1, *d*). *Tube* about 1·65 times as long as head.

Measurements of ♂ (paratype), in mm.: Head, length 0·636, greatest width (across eyes) 0·302, greatest width across cheeks (inclusive of tubercles) 0·287, least width near middle 0·252, least subbasal width 0·242; eyes, length 0·158, greatest width 0·094, least interval 0·115; prothorax, median length of pronotum 0·266, width (inclusive of coxae) 0·609;

* This is the greatest subbasal width; the greatest width near middle is 46 μ.

pterothorax, width 0·840; abdomen, width 0·825; tergum VIII, median length 0·463, tergum IX, 0·196; tube, length 1·15, greatest subbasal width 0·144, width at apex 0·090.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ):	117	97	563	392	354	224	113	138
Width (μ):	87	54*	54	52	47	40	32	27

Total length of antenna 2·0 mm.

Larva, instar I.—Length about 2·2 mm. Colour bright red, with abdominal segments II and III wholly, and segments VI and VII largely, white or cream-coloured, the red pigmentation on the last-named segments confined to a complete narrow lateral stripe on each side, a complete median ventral one, and a median dorsal one in segment VI; antennae, legs, and other sclerotised portions brownish-grey, the antennae shaded with brown basally, particularly at base of II. All setae pointed. Length (width) of antennal segments: I 37(48), II 43(41), III 107(37), IV 87(36), V 66(32), VI 68(28), VII 65(19); segment III at apex with a tubercle bearing a dark pointed seta about 210 μ in length. Lateral seta on abdominal segment VII 238 μ.

Larva, instar II.—Length about 4 mm. Colour bright red, with abdominal segments II and III wholly, and segments VI and VII largely, cream-coloured or yellow, the red pigmentation on the last-named segments confined to a complete narrow lateral stripe on each side, a complete median ventral one, and a median dorsal one in segment VI; femora and the two basal antennal segments with red pigmentation; legs and antennae brown or grey-brown, the former pale distally, the latter with segments II and III darkest and nearly or quite blackish-brown at base. Head subrectangular, length (239 μ) about equal to width (245 μ), with only one pair of dorsal setae, these long, curved, and about 200 μ if straightened. Antennae long and slender, segment III widened at base and broadly attached to II, with a distal, dorsal tubercle from which arises a slender, pointed seta about 210 μ long; length (width) of segments as follows: I 63(63), II 84(49), III 280(42), IV 185(33), V 122(33), VI 94(27), VII 86(17). Pronotal setae not quite pointed, measuring in one specimen as follows: anterior marginals 73 μ, anterior laterals 103 μ, epimerals 147 μ, posterior marginals 43 μ, posterior medians 60 μ. Abdominal setae, black, scarcely sharply pointed; lateral pair on segment VII about 200 μ long; dorsal setae on IX about 346 μ, longest on X 294 μ; tergum IX 224 μ, X 290 μ.

Panama: Barro Colorado Island, Canal Zone (type locality), and Porto Bello, 26.vi.–11.vii.1933 (*J. D. Hood*), and xii.1933 (*Silvestre Aviles*), 24♀♀, 18♂♂, 3 larvae. Trinidad, B.W.I.: 30.iii., 2.iv., and xii.1915 (*Dr. C. B. Williams* and *F. W. Urich*), 21♀♀, 23♂♂, 17 larvae. Ecuador: Lolita, 23.xi.1917 (*J. B. Rover*), 1♀; and Machala, 20.xii.1917 (*J. B. Rover*), 1♂

Types in the author's collection.

The species lives in dead leaves, on dead branches, and occasionally under loose bark—wherever it can find suitable cultures of the moulds whose spores serve as food. A clump of decomposing, moist leaves, suspended in a forest tree, will often yield dozens of slow-moving, coal-black adults and a generous assortment of bright hued offspring in all stages of development, and yet, a few days later, the old habitat may be found deserted, the young having matured, and all flown to more attractive pastures.

The specific name has reference, of course, to the three stout setae which form a partial circlet near the apex of the fore femur. As was brought out in the preceding key, *bondari* and *monochaetus* differ markedly in their femoral armature, and the only neotropical species with which this may be compared

* This is the greatest subbasal width; the greatest width near middle is 47 μ.

with profit is Bagnall's *longicornis*. The differences between *trichaetus* and *longicornis*, summarised in the key, would be convincing evidence of their distinctness, were it not for a probable overlapping in their geographical distribution and a real question as to the accuracy of Bagnall's description and figures. Unfortunately, his unique type is in the Copenhagen Museum and quite inaccessible.

Actinothrips **monochaetus,** sp. n.

(Fig. 2, *a–e*).

♀ (macropterous).—Length about 5·1 mm. (fully distended, 6·2 mm.). *Colour* very dark, the head and thorax blackish-brown, the abdomen opaque coal black (after maceration in caustic, the abdomen beyond segment II remains opaque black, excepting the basal one-half or more of IX and the apex of the tube, which are brown); legs blackish-brown, with tarsi and tips of tibiae brown; wings of both pairs light brownish, with a blackish-brown median vein extending nearly to tip, the fore pair much darker at base, somewhat darker along most of anterior margin and along posterior margin in basal third, the hind pair somewhat darker along anterior margin and in posterior half, the fringing hairs of both pairs nearly black; antennae with segments I and II concolorous with head, III and IV yellow, the former shading in basal fourth to blackish-brown at extreme base, its swollen apical portion often washed lightly with pale brown, IV lightly brownish at base and in distal portion, V darker than IV, shading to brown at extreme base and in the narrowed portion of apex, its middle brownish-yellow or yellowish-brown, VI darker than V, blackish-brown in its slender pedicel, scarcely as dark apically, middle portion often yellowish-brown, VII and VIII nearly blackish-brown.

Head about 2·13 times as long as greatest width (which is across eyes) and 2·86 times as long as median line of pronotum, its form and chaetotaxy well shown in fig. 2, *a*; produced portion in front of eyes nearly or quite parallel-sided in the narrower basal part, this shorter than the diameter of posterior ocelli; cheeks narrowed shortly behind eyes and again near base, each with two very stout, prominent, dark setae arising from distinct tubercles, one pair just behind eyes, the other less than one-third the length of cheeks from base; surface closely and lightly transversely striate, producing a serration of the cheeks only in the region of the anterior pair of tubercles; postocular setae always shorter than eyes, about 126 μ long and 84 μ apart at base, their slightly dilated, pale tips never surpassing posterior ocelli; two or three pairs of postocellar setae always present, scarcely equal in length to diameter of posterior ocelli, subequal in length to two anteocellar pairs, but shorter than a more prominent pair at anterior angles of eyes. *Eyes* less than 0·28 as long as head and about 1·8 times as long as wide, their least interval about equal to their greatest width. *Ocelli* of posterior pair with their hind margins opposite centre of eyes, their diameter about 34 μ, interval 47 μ, distance from anterior ocellus 109 μ, the latter smaller and with its hind margin scarcely in advance of posterior lateral margin of first antennal segment. *Antennae* (fig. 2, *b*) long and slender, fully 2·7 times the length of head; sense-cones long and slender, nearly indistinguishable from setae, disposed on the inner (outer) surfaces of the segments as follows: III 1(1), IV 1(2) + 1 ventral, V $1(1^{+1})$, V $1(0^{+1})$, VII 1 dorsal. *Mouth-cone* reaching beyond middle of prosternum, semicircularly rounded at tip. *Prothorax* (fig. 2, *a*) nearly 2·6 times as broad across coxae as median length of pronotum, with a short median apodeme in front of middle, its surface smooth, anterior and posterior margins of pronotum concentric and arcuate, epimeron and pronotum not fused; anterior marginal setae slender, pointed, about 37 μ; anterior laterals and the two posterior pairs long, dark brown, with slightly dilated, pale tips, the anterior laterals about 112–130 μ, epimerals 133–172 μ; posterior marginals 119–148 μ, all borne on low tubercles; midlaterals small, pointed, about 47 μ; coxa without strong setae. *Fore legs* (fig. 2, *a*) long and slender (normal to the genus), the fore femur with three major setae only, all dark brown, with pale, slightly dilated

tips and arising from low tubercles, one of these on outer surface at basal third, another near middle of dorsum, the last and smallest on inner surface near apex; fore tibia without strong setae; fore tarsus unarmed. *Wings* of nearly equal width throughout; fringe long and close, that on fore-wings double for 38–45 hairs; subbasal setae on fore-wings about 91, 76, and 186 μ, respectively, middle one pointed, the others dilated and pale at tip. *Metathorax* with a pair of large, dark setae, about 248 μ long and 161 μ apart, on dorsum, these setae arising from low and scarcely distinguishable tubercles. *Abdomen* long and slender;

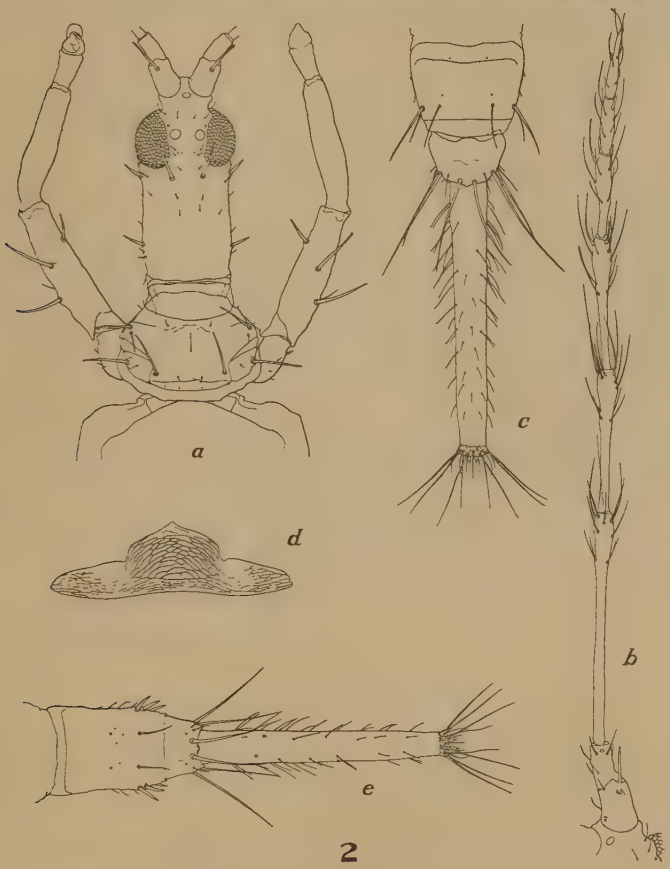


Fig. 2.—*Actinothrips monochaetus*, sp. n.: *a*, head and prothorax, ♀, paratype, all minor setae omitted from appendages; *b*, right antenna, ♀, paratype; *c*, abdominal segments VIII–X, ♀, paratype; *d*, abdominal tergum I, ♀, paratype; *e*, abdominal segments VIII–X, ♂, paratype.—Drawn by Mrs. Philip T. Bassett; camera lucida.

tergum I (fig. 2, *d*) with a more strongly sculptured area, inverted-shield-shaped in form, occupying the anterior median portion; setae long, most of them curved, pointed, and pale, those on VII and IX largely brown and nearly straight; one pair only of brownish, sigmoid, wing-retaining setae. *Tube* (fig. 2, *c*) about 1·6 times as long as head, sides nearly straight, covered with a number of slender, nearly black setae which are shorter than the greatest

width of tube, absent from basal and apical tenths, and densest at basal third; terminal setae pale, more than one-third as long as tube.

Measurements of ♀ (paratype), in mm.: Length about 5·1 (distended, 6·23); head, length 0·670, greatest width (across eyes) 0·321, greatest width across cheeks (inclusive of tubercles) 0·304, least width near middle 0·270, least subbasal width 0·259; eyes, length 0·185, greatest width 0·102, least interval 0·109; prothorax, median length of pronotum 0·234, width (inclusive of coxae) 0·602; pterothorax, width 0·854; abdomen, width 0·882; tergum VIII, median length 0·301, tergum IX, 0·196; tube, length 1·08, greatest subbasal width 0·153, width at apex, 0·090.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ):	123	97	518	323	308	206	130	147
Width (μ):	91	63*	48	50	47	39	32	26

Total length of antenna 1·85 mm.

♂ (macropterous).—Length about 5·3 mm. (distended, about 6·5 mm.). *Colour* as in female; structure very similar, differing from above description only as follows: *Head* about 2·54 times as long as median line of pronotum. *Antennae* fully three times the length of head. *Prothorax* longer, only 2·32 times as broad across coxae as median length of pronotum; setae as in female, anterior marginals 47 μ, anterior laterals 113 μ, midlaterals 57 μ, epimerals 160 μ, posterior marginals 130 μ (in one specimen measured). *Fore femora* armed as in female, not enlarged; fore tarsi without tooth. *Abdomen* scarcely differing in form from that of female, excepting that the distal segments are more elongated (see measurements and fig. 2, *e*); sculpture of tergum I exactly as in female; segment VIII with three short, stout, yellow setae on each side at distal end (fig. 2, *e*). *Tube* scarcely 1·6 times as long as head.

Measurements of ♂ (paratype), in mm.: Head, length 0·658, greatest width (across eyes) 0·315, greatest width across cheeks (inclusive of tubercles) 0·280, least width near middle 0·246, least subbasal width 0·248; eyes, length 0·183, greatest width 0·104, least interval 0·104; prothorax, median length of pronotum 0·259, width (inclusive of coxae) 0·602; pterothorax, width 0·854; abdomen, width 0·833; tergum VIII, median length 0·448, tergum IX. 0·217; tube, length 1·01, greatest subbasal width 0·140, width at apex 0·093.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ):	127	103	602	365	322	206	127	143
Width (μ):	86	61†	48	50	45	39	33	27

Total length of antenna 2·0 mm.

Larva (*instars I and II*).—Bright red, without pale cross bands.

British Guiana: Mabaruma, N.W. District. Described from 9♀♀, 11♂♂, and 4 larvae, iii.1931 (*J. G. Myers*), transmitted for determination by Sir Guy A. K. Marshall [Imp. Inst. Ent., No. 1914; Hood No. 469]. *Holotype*, *allotype*, and one-half of the *paratypes* in the collection of the British Museum; remainder of material in author's collection.

The more important diagnostic features of this species are contrasted with those of the Brazilian *bondari* in the key given above. Other differences exist, and in nearly every part of the body; most are reflected in the description. The specific name refers to the presence of a single stout seta near the apex of the fore femur.

* This is the greatest subbasal width; the greatest width near middle is 52 μ.

† Greatest subbasal width; greatest width near middle is 50 μ.

DIE AFRIKANISCHEN ARTEN DER GATTUNG *CALLISPA*

Von. F. Spaeth.

Die afrikanischen *Callispa*-Arten zerfallen in zwei Hauptgruppen :

(A). Fühler sehr schlank, um die Hälfte länger als Kopf und Halsschild zusammen, ihr 3. Glied auffällig lang, viermal so lang als dick, um die Hälfte länger als das 1. und 2. oder das 4. und 5. zusammen: Halsschild ohne Längsrinnen an der Seite, Rotgelb, vorn wahrscheinlich bei allen Arten mit schwarzem Saum: Flügeldecken metallisch, ohne verdickten Rand, mit feinen, überall gleichen Punktstreifen . . . **Callispella,** subgen. n.

Hieher gehören : 1. Halschild mit schon von der Mitte an nach vorn konvergierenden Seiten und wenig grober, nicht dichter Punktierung: Beine und Unterseite (ausser Prosternum und letzte Sternite) schwarz. Ost-Afrika bis Mozambique . . . . . *C. gracilicornis*, Weise (genotype).

2. Seiten des Halsschildes bis vor die Mitte parallel, Beine und Unterseite vorwiegend gelb: *bayoni*, Gestro von Uganda (Halsschild breiter, kräftiger punktiert, Flügeldecken länger und schmäler.: *schoutedeni*, Uhm., von Katanga bis Kamerun (Halsschild feiner und dichter punktiert). Aus der ähnlichen Färbung könnte vermutet werden, dass auch *sebakuensis*, Per., in diese Untergattung gehört, doch fehlen dem Typus die Fühler und daher in der Beschreibung Angaben darüber.

(B). Fühler kräftig, kaum länger als Kopf und Halsschild zusammen: ihr 3. Glied höchstens doppelt so lang als dick, nicht länger alas zwei anstossende Glieder. *Callispa*, s.str.*—Diese Arten bilden drei Gruppen :

I (II). Seitendach der Flügeldecken breit, mit verdicktem, aufgeworfenem, glattem Rand; auch der Rand des Halsschildes ist verdickt, innen davon eine Grube oder Furche; hieher : *testacea*, Kr., *limbata*, Gestro, **ugandina,** sp. n.

II (I). Seitendach der Flügeldecken schmäler, ohne verdickten Rand.

III (IV). Neben dem glatten, meist verdickten Rand des Halsschildes ist ein tiefer, grob punktierter Eindruck; hieher :

(*a*) mit ganz schwarzer Oberseite : *unicolor*, Weise, und **neavei,** sp. n.

(*b*) mit dunkelmetallischen Flügeldecken und sonst schwarzer Oberseite : *kuntzeni*, Uhm., und **marshalli,** sp. n.

(*c*) mit rotem Halsschild und sonst schwarzer Oberseite : **cavicollis,** sp. n.

(*d*) mit ganz gelber Oberseite : *nigripes*, Baly, und *similis*, Uhm.

(*e*) Kopf und Halsschild rotgelb, Flügeldecken innen schwarz, Rand pechbraun : *natalensis*, Baly.

IV(III). Halsschild ohne dicken Rand, höchstens mit einem schwachen Eindruck oder gröberer Punktierung :

1 (8). Oberseite wenigstens vorn hell.

2 (3). Oberseite einfärbig hell; *kilimana*, Kolbe (mit der nach Uhmann *silacea*, Weise synonym), *bottegoi*, Gest., und *hessei*, Uhm.

3 (2). Flügeldecken dunkel.

4 (5). Kopf und Halsschild rötlichgelb : *semirufa*, Kraatz.

* Genotype *fortunii*, Baly.

5 (4). Nur der Halsschild hell.
6 (7). Flügeldecken schwarz; *errans*, Per.
7 (6). Flügeldecken metallisch: *africana*, Baly, und *bicoloripes*, Pic; beide Arten mir unbekannt.
8 (1). Oberseite ganz dunkel.
9(12). Oberseite glänzend, Bauch rot, Punktstreifen innen feiner.
10(11). Beine schwarz: *rufiventris*, Uhm.
11(10). Beine gelbrot: *nyakaensis*, Uhm. und **fulvipes**, sp. n.
12 (9). Oberseite matt, unten ganz schwarz, Streifen fast gleich.
13(14). Auffällig breite Art (5 × 2 mm.); Halsschild überall gleichmässig punktiert: *australis*, Per. (mir unbekannt).
14(13). Schmälere Arten.
15(16). Halsschild an der Seite abgeflacht, hier mit gröberen, fast zusammenhängenden Punkten, Scheibe neben der glatten(?) Mittellinie mit feineren und weniger dichten Punkten: *umtalina*, Per., mir ebenfalls unbekannt. (Nach Uhm. 1934, *Ann. S. Afr. Mus.*, **30** : 391 soll das Abdomen des Typus rotbraun sein.)
16(15). Halsschild an der Seite nicht abgeflacht.
17(18). Die Stirn tritt vor die Augen in einer sehr breiten Rundung nur wenig vor; Flügeldecken hinten breiter, ihre Streifen ganz regelmässig, die inneren Zwischenräume breiter als die Streifen, die äusseren trennen deutlich die Punkte der Streifen: **rhodesiaca**, sp. n.
18(17). Die Stirn tritt vor die Augen weiter und mit einer Spitze vor; Flügeldecken hinten nicht breiter, Punktierung weniger regelmässig, die Zwischenräume schmäler, die äusseren undeutlich und von den Punkten angegriffen.
19(20). Flügeldecken kürzer, dreimal so lang als breit, hinten fast quer abgestutzt; Punktur von Halsschild und Flügeldecken sehr grob und dicht, ersterer um die Hälfte breiter als lang; Stirnspitze abgestumpft: *intermedia*, Uhm.
20(19). Flügeldecken wenigstens viermal solang als breit, hinten verrundet, Punktierung weniger grob, Halsschild höchstens wenig breiter als lang; Stirnspitze schärfer.
21(22). Flügeldecken sehr schmal, fast fünfmal so lang als breit; Punkte der äusseren Streifen sehr dicht gedrängt und diese nicht ganz regelmässig; Halsschild so breit als lang, an der Seite gröber und dichter als neben der Mitte punktiert. **angonina**, sp. n.
22(21). Flügeldecken nur etwa viermal so lang als breit, Punkte der äusseren Streifen regelmässig, ihre Zwischenräume deutlich, Halsschild breiter als lang, an der Seite kaum gröber als in der Mitte punktiert.
23(24). Halsschild bis zur Basis gleich breit 9: **mashonensis**, sp. n.
24(23). Halsschild hinten verengt: **nyassica**, sp. n.

Callispa **ugandina**, sp. n.

Mässig lang-eiförmig, oben sehr glänzend. Die Scheiben des Halsschildes und der Flügeldecken, letzere mit Ausnahme der allmälig helleren Spitze dunkelbraun, die aufgeworfenen Seitenränder des Halsschildes, das Seitendach und der Kopf lebhaft gelbrot das Schildchen mit dunkleren Rändern, die dreieckige Spitze des Kopfes vorn angedunkelt, die Fühler schwarz mit dunkelrotem Basalglied, die Brust pechbraun, die übrige Unterseite und die Beine rötlichgelb.

Die Fühler reichen weit über die Schultern; ihr 2. Glied ist kaum merklich länger als das dritte, welches nicht ganz um die Hälfte länger ist als eines der folgenden; sie sind schwach längsrissig, allmälig mehr behaart, aber kaum an Dicke zunehmend. Kopf fast scharf dreieckig zugespitzt, fein punktuliert. Halsschild doppelt so breit als lang, an der Basis am breitesten, bis zur Mitte wenig, dann viel mehr verengt, mit spitzigen Vorderecken; jederseits ein sehr tiefer, grob punktierter Längseindruck neben dem dick aufgeworfenen, gelben, glänzenden, bis auf einzelne, grobe Punkte, glatten Rande; vor dem Schildchen ist ein schmaler Quereindruck, daneben und vorn einige Punkte auf der sonst spiegelglänzenden Scheibe.

Flügeldecken um die Hälfte breiter und viermal länger als der Halsschild, mit fast parallelen Seiten und abgestutzter Spitze; die Punktstreifen werden aussen gröber, der Skutellarsreif und die ersten zwei sind fast erloschen, die letzten grob, mit einigen Querrunzeln. Neben dem dick aufgeworfenen Rand des Seitendaches ist eine regelmässige, grobe Punktreihe; der 6. und 7. Streif sind in der Mitte, der nach vorn sich fortsetzende gemeinsame im ersten Drittel mit dem 8. verbunden. $4\frac{3}{4} \times 2\frac{1}{4}$ mm.

Dr. S. A. Neave hat das einzige vorliegende Stück in Uganda: Tero Forest im Sept. 1911, gesammelt. (Brit. Mus.)

C. ugandina ist der *testacea*, Kr., zunächst verwandt, abgesehen von der Färbung durch tiefere Seitengruben, mehr verdickten Rand und stärker konvergierende Seiten des kürzeren Halsschildes, mehr gewinkelte Schulterecken, dicker gerandetes Seitendach und längere Flügeldecken verschieden.

Callispa **cavicollis**, sp. n.

Oblong, mässig schmal, mit parallelen Seiten der Flügeldecken, stark glänzend, schwarz, nur der Halsschild gelbrot, welche Färbung auch seine Seiten auf der Unterseite haben. Fühler mit wenig dickeren Endgliedern; 1. Glied klein, 2. und 3. doppelt so lang, 4. merklich kürzer, die weiteren wenig verschieden, Kopf zwischen den Augen fein schagriniert, aber ohne Punktierung, mit einem weiten Längseindruck, vorn stumpf dreieckig. Halsschild annähernd quer-rechteckig, an der Seite ziemlich gerundet und mit einem sehr tiefen, geraden, bis an den Vorderrand reichenden, an der Basis durch einen Quer-Eindruck mit seinem Gegenüber verbundenen Längseindruck, der einige grübchenartige Punkte trägt; aussen von ihm ist der Rand stark gewölbt und glatt.

Flügeldecken wenig breiter, gut dreimal so lang als der Halsschild, mit groben, überall fast gleichen, regelmässigen Punktstreifen und ebenso breiten Zwischenräumen; von vorn bis zur Mitte sind 8, dahinter 10 Streifen, da der 5. und 6. sowie der 7. und 8. sich verbinden, wobei es nicht klar zum Ausdruck kommt, welche Streifen erlöschen; eine Beule oder Querfalte, wie bei anderen Arten, besteht vor der Vereinigungsstelle nicht. Der Skutellarstreif fehlt. Die vorliegende Art ist die einzige bisher bekannte *Callispa*, die einen solchen nicht besitzt, muss aber doch infolge ihrer sonstigen vollständigen Übereinstimmung mit anderen afrikanischen Callispen in dieser Gattung ihren Platz finden. Weise hat zwar die Punktreihe am Schildchen als wichtigstes Merkmal für die Gruppeneinteilung der Hispini der alten Welt verwendet und auch die Callispini hiedurch praecisiert, aber es zeigen sich eben auch hier Ausnahmen; so bei den Lepthispini, wo Weise selbst (1901, *Deuts. ent. Z.*, **1901**: 225) für *L. clavareaui*, sowie Uhmann (1931, *Rev. Zool. Bot. Afr.*, **20**: 256) für *L. ruficollis* das Fehlen des Skutellarstreifs festgestellt haben. Dagegen liegt mir aus Uganda, Kampala (Imp. Inst. of Ent.) eine *Lepthispa* vor mit gut entwickeltem Nahtstreif, die ich von *ruficollis* sonst nicht unterscheiden konnte. Long.: 4 mm.

Süd-Africa: Pondoland, Port St. John (*R. E. Turner*), 7 Stücke (Holotype im Brit. Mus., Paratype in meiner Sammlung).

Callispa **marshalli**, sp. n.

Kurz eiförmig, oben mit starkem Glanz, schwarz, die Flügeldecken dunkel erzgrün, Unterseite schwarz, Hinterleib und Beine rotgelb, das 1. Fühlerglied rotbraun. Kopf ohne merkbare Punktierung, vorn dreieckig mit abgestumpfter Spitze. Halsschild doppelt so breit als lang, mit parallelen, erst ganz vorn zu den Vorderecken gebogenen Seiten; an der Seite ein breiter und tiefer, fast bis an den Vorderrand reichender, grob punktierter Längseindruck, vor dem Schildchen ein weniger tiefer Quer-Eindruck, durch einen glatten Wulst von den Seitenfurchen getrennt; bis auf einzelne tiefe Punkte neben der Mitte und auf dem verdickten Rande ist die Oberseite glatt.

Flügeldecken breiter, zwei ein halbmal so lang als breit, mit regelmässigen, innen feineren Punktstreifen; an der Basis des 3. und 4. ist eine kleinere, vor der Mitte eine etwas tiefere Grube; auch der breitere Raum, der durch die Vereinigung des 6. und 7. Streifs entsteht, ist schwach beulig, sowie vorn und hinten durch ein Grübchen markiert. Seitendach schmal gerandet, und aufgebogen, mit einer in der Mitte erlöschenden Punktreihe. 3½ mm.

Mashonaland: Chirinda, Upper Buzi River (*Sir G. A. K. Marshall*) (Brit. Mus. 4 Stücke, 1 paratype in meiner Sammlung).

Von der sehr ähnlichen *C. kuntzeni*, Uhm., ist sie durch kürzeren, breiteren Halsschild, dessen Seiten bei letzterer von der Basis an, bei *marshalli* erst ganz vorn konvergieren, grössere, bis an den Vorderrand ausgedehnte Seitengruben (bei *kuntzeni* bleiben sie weit entfernt), ferner durch die anders metallische Färbung und weniger feinen inneren Punktstreifen der Flügeldecken, endlich durch breiteres, abgesetztes Seitendach und den aufgebogenen Rand desselben verschieden.

Callispa **neavei**, sp. n.

Mässig schlank, tief schwarz, nur der Hinterleib dunkelrot.

Die Fühler erreichen nicht ganz die Schulter, ihr 3. Glied ist um die Hälfte länger als das zweite und vierte. Kopf vorn dreieckig mit abgestumpfter Spitze, vorgezogen, zwischen den Augen fein punktiert. Halsschild fast zweimal so breit als lang, mit nach vorn mehr verengten Seiten; vor dem Schildchen ist ein tiefer und langer Quer-Eindruck mit einzelnen gröberen Punkten; an der Seite ein tiefer Längseindruck, innen und vereinzelt auch aussen mit groben, narbigen Punkten. Flügeldecken gleich hinter der Basis erweitert, dann bis hinten fast parallelseitig; die Scheibe mit regelmässigen, innen feineren Punktstreifen, die äusseren noch immer schmäler als ihre Zwischenräume; der 6. und 7. Streif reichen vorn nur bis zur Mitte, wo sie eine quere, hohe Falte abschliesst, die sich nach vorn verflacht; der 5. Zwischenraum ist daher hier verbreitert und erhöht; aussen vom 3. Streif ist weit vor der Mitte ein Grübchen. 6 × 2½ mm.

Nyasaland: bei Mlanje (*S. A. Neave*), ein Stück im Brit. Mus.

C. neavei ist jedenfalls der mir nicht bekannten *C. unicolor*, Weise, von Rhodesia nahe verwandt, aber grösser, wohl auch breiter, mit rotem Bauch; bei *unicolor* sind die Steifen unregelmässig, von langen Querrunzeln durchsetzt und scheint die Querfalte zu fehlen.

Callispa **fulvipes**, sp. n.

In der Körperform der *kilimana*, Kolbe täuschend ähnlich ausser der anderen Färbung durch viel feinere, innere Punktstreifen verschieden.

Stark glänzend, tief schwarz, der Bauch rot, die Beine und Mundteile rotgelb, die ersten zwei Fühlerglieder und die Oberlippe braunrot. Kopf in eine dreieckige, stumpfe Spitze vorgezogen, die weniger scharf ist als bei *kilimana* und *nyassica*; fein punktuliert und

schagriniert; Fühler kürzer und schlanker als bei *rufiventris*, die Schulter nicht erreichend, ihr 3. Glied kaum länger als das zweite, die folgenden, fast gleich langen, kürzer. Halsschild an der Basis kaum um die Hälfte breiter als lang, nach vorn zuerst kurz parallel, dann konvergierend, kürzer und mehr verengt als bei *rufiventris*, auch feiner punktiert; ein seichter, kurzer Quereindruck vor dem Schildchen und ein schwacher, länglicher an der Seite; letzterer sowie die Basis hinter ihm mit einigen gröberen Punkten; neben der Mitte einige feine sehr zerstreute. Flügeldecken mit fast parallelen Seiten; die ersten zwei Punktstreifen sind sehr fein, die vier folgenden etwas, die letzten noch stärker, alle aber im Verhältniss nur halb so kräftig als bei *rufiventris*; der, 6. und 7. gehen nach vorn nur bis zur Mitte und sind hier durch eine glatte Querfalte, die sich aussen verflachend fortsetzt, abgeschlossen. 5 × 2 mm.

Der Typus wurde von *Sir G. A. K. Marshall* in MASHONALAND: Mazoe xii.1905 gesammelt (Brit. Mus.); der Paratypus von PORT. O. AFR.: Polana ist in meiner Sammlung.*

Callispa **nyassica**, sp. n.

Schmal, fast walzenförmig, ganz schwarz, oben wenig glänzend.

Fühler nicht ganz um die Hälfte länger als Kopf und Halsschild zusammen, das 1. Glied sehr kurz, zum Teil in der vom Stirnvorsprung gebildeten Höhlung versteckt, das 2. um die Hälfte länger, das 3. wieder um die Hälfte länger, alle weiteren so lang als das zweite, grob punktiert. Kopfschild zwishen den Fühlerwurzeln in eine scharfe Spitze ausgezogen; Stirn ziemlich lang und scharf dreieckig zugespitzt, zwischen den Augen mässig grob und zerstreut punktiert und dicht schagriniert, der Scheitel glatter. Halsschild etwas länger als breit, an den Seiten kaum gerundet, nach hinten nur wenig verengt, vorn stärker zugerundet, an der Seite ohne Eindruck, vor dem Schildchen mit einem flachen; auf der Scheibe grob und in gleicher Stärke, aber wenig dicht punktiert, in und neben der Mitte mit glatten Stellen; die Punktur ist an der Seite, wo bei verwandten Arten ein Eindruck ist, etwas dichter. Flügeldecken viermal so lang als breit, mit parallelen Seiten, etwas gröber als der Halsschild, innen vor der Mitte mehr zerstreut und feiner, aussen und hinten dichter, in regelmässigen, aber stellenweise gestörten Streifen punktiert, deren Zwischenräume schmale Leistchen bilden; der 3. und 4. Streif sind hinter der Mitte etwas verworren, der 5. bis 8. vor ihr auf zwei vermindert, welche an der Schulterbeule ebenfalls erlöschen. 7 × 2 mm.

Brit. Mus.: NYASALAND: Mlanje, i.1913 (*S. A. Neave*); Cholo, 1919 (*R. C. Wood*); von beiden Fundorten Paratypi in meiner Sammlung.

Callispa **mashonensis**, sp. n.

Der *C. nyassica* ganz ähnlich in Färbung und Skulptur; im allgemeinen gleich, hauptsächlich durch kürzeren, verhältnismässig breiteren Halsschild verschieden, dessen Seiten hinten zur Basis senkrecht verlaufen, so dass die Basis nicht schmäler ist als die Stelle vor ihr; die Punktierung des Halsschildes ist etwas gröber und an der Seite weniger dicht; in der Punktierung der Flügeldecken ist kein Unterschied, aber sie sind etwas länger und hinten breiter abgestutzt. 6¾ × 2 mm.

Brit. Mus.: MASHONALAND: bei Salisbury von *Sir G. A. K. Marshall* gesammelt.

* Die in letzter Zeit (1934, *Ann. S. Afr. Mus.*, **30**: 390) von Uhmann beschriebene *C. nyakaensis* ist jedenfalls der obigen sehr ähnlich, doch ist sie oben nigrocyanea und die Reihen 5 und 6 (nicht 6 und 7) sind in der Mitte der Flügeldecken abgekürzt; auch wird die Querfalte nicht erwähnt, scheint sonach dieser Art zu fehlen.

Peringuey hat seine *C.* (*Amblispa*) *australis* nach Stücken beschrieben, welche Sir Guy Marshall ebenfalls bei Salisbury gesammelt hatte; die nahe liegende Vermutung, es liege in beiden Fällen dieselbe Art vor, scheint nicht zuzutreffen, da Peringuey die Grösse seiner Art mit $5\frac{1}{2} \times 2\frac{3}{4}$ mm. angibt; es ist also offenbar eine auffällig breite, merklich kleinere Art; auch sollen die vier letzten Fühlerglieder etwas dicker, die Punkte auf dem Halsschild nicht tief sein. Ich wage daher nicht, die vorliegende Art auf *australis*, Per., zu beziehen.

Callispa **rhodesiaca,** sp. n.

Wie *nyassica* oben und unten ganz schwarz, wenig glänzend, oben grob punktiert. Kürzer und breiter als jene, zwar auch noch fast walzenförmig, aber erst hinter der Mitte der Flügeldecken mit der grössten Breite, bis wohin sich die Seiten schwach erweitern. Die Fühler sind etwas kürzer, aber nicht schlanker und von den gleichen Längeverhältnissen. Der Kopf ist breiter, mit einer bei *nyassica* fehlenden feinen Mittellinie, zwischen den Augen mehr gewölbt, viel feiner punktiert und ebenso dicht schagriniert; die Spitze vorn ist nicht dreieckig, sondern in der Mitte breitlappig und *gerundet* vorgezogen, daneben beiderseits schwach ausgerandet. Der Halsschild ist kürzer und breiter, mehr gewölbt, um ein Viertel breiter als lang, mit geraden, vorn stärker konvergierenden Seiten; die Mitte der Scheibe ist glatt, daneben stehen feinere Punkte als bei *nyassica*, während an der Seite die Punkte dichter stehen und auch wesentlich gröber sind als bei jener; die Entfernungen dieser Punkte sind kleiner als diese selbst; ein Längseindruck ist nicht wahrnehmbar. Die Punktstreifen der im Verhältnis zu *nyassica* viel kürzeren, breiteren, mehr gewölbten und nach hinten mehr erweiterten Flügeldecken sind etwas feiner, dichter besetzt, sehr regelmässig; der 6. und 7. Streif sind vor der Mitte abgekürzt; der 3. Zwischenraum hat (zufällig?) hinter der Mitte einige grobe Punkte; die äusseren Zwischenräume sind gewölbt, schmal, aber doch so breit als die Streifen, bei *nyassica* schmäler. $5\frac{1}{2} \times 2$ mm.

Brit. Mus.: S. Rhodesia: Salisbury, ix.1916 (*R. Lowe Thompson*).

Von *angonina* ist *rhodesiaca* durch die Bildung der Kopfspitze, mehr gewölbten, breiteren Halsschild, kürzere, breitere Flügeldecken und deren regelmässige Streifen ganz verschieden.

Callispa **angonina,** sp. n.

Sehr schmal walzenförmig, mit ganz parallelen Seiten, schwarz, wenig glänzend. Stirn dicht schagriniert und wenig dicht, mässig fein punktiert, in eine dreieckige, kurze, scharfe Spitze verlängert. Halsschild fast so lang als breit, mit geraden, nur vorn zuerst unmerklich divergierenden, dann zu den Vorderecken konvergierenden Seiten, an der Basis nicht verengt; die Oberseite mit Ausnahme einer wenig deutlichen, glatten, schmalen Mittellinie mit gleichartigen, neben dem Rande gedrängter stehenden Punkten; hier kein Längseindruck, vor dem Schildchen ein kurzes Quergrübchen. Flügeldecken fünfmal so lang als breit; die Punkte der Streifen sind nur vorn innen etwas feiner, so stark wie auf dem Halsschild, aussen und hinten gröber und dichter, so dass Streifen und Zwischenräume aussen nur stellenweise, hinten gar nicht zu erkennen sind; diese Punktierung ist viel gröber und dichter als bei *nyassica*, von der sie sich auch durch längere Gestalt und Flügeldecken, kürzeren, zur Basis nicht verengten Halsschild unterscheidet. 6×2 mm.

Nyasaland: Dedza, Zentral Angoniland, v.1910 (*S. A. Neave*), Brit. Mus.

NEW SPECIES OF CARABIDAE (COL.) FROM MAURITIUS

By J. Vinson

(*Department of Agriculture, Mauritius.*)

The Carabidae of the Mascarene Islands were studied by Alluaud in 1916 (*Ann. Soc. ent. Fr.*, **85** : 37–90). In 1933 (*Afra*, **7** : 1-16) he described a new genus and five new species from Mauritius. A revision of all the Mauritian species was published at the same time.

Since that time, a few other new species have been found and have been sent to Monsieur Ch. Alluaud for comparison with the types of related species mostly to be found in his collection. The author is indebted to him for valuable comparative notes and for many useful suggestions.

The types of the species here described will be deposited in the British Museum.

Pterostichinae.

Colpodes **mauritiensis,** sp. n.

Length 8·4 mm. Dark brown, moderately shiny; antennae, legs and apex of elytra reddish-brown, palpi light brown.

Head (1·72 × 1·24 mm. eyes inc.) elongate, narrower than pronotum; eyes very feebly prominent, hind part confused with gena; frontal furrows well marked; labrum rectangular with apex slightly emarginate; first orbital setigerous pore on middle of orbit, second on hinder part of head, near neck; antennae rather long (reaching 1st quarter of elytra), 1st joint nearly double length of 2nd, 3rd longest; maxillary palpi with 2nd and 3rd joints arcuate.

Pronotum (2·14 × 2·00 mm.) typically elongated, smooth; basal and apical margins equal in width; lateral margins rounded and imperceptibly reflexed, forming a fairly narrow border along anterior two-thirds; anterior angles feebly produced, posterior angles rather broadly rounded; basal foveae broad, very shallow and long, diverging in front; median line fine but well impressed, obliterated near base and apex.

Elytra (4·55 × 2·97 mm.) ovate, convex; basal border making an obtuse angle with lateral border, much produced, shoulders nearly wanting; lateral margins slightly reflexed, pre-apical part very slightly sinuate, apex of each elytron distinctly and separately rounded; striae well impressed but not very deep, apparently impunctate, interval 3 with three setigerous pores very small but distinct, 1st stria with a setigerous pore on base, scutellary striola present; scutellum very minute, placed above basal border of elytra.

Meso- and meta-tarsal joints finely but fairly distinctly grooved on uppersides.

Microsculpture just visible at × 46, meshes isodiametric on head and elytra, in minute transversal stripes on pronotum, forming meshes much wider than long.

Hab.—Mauritius, "Les Mares" (2200 ft.), 2.v.1934. In the humus surrounding a tree-trunk in the forest, collected by the author.

This species differs greatly from most of the other *Colpodes*. The only allied species seems to be *C. caraboides*, Alluaud (1909, *Ann. Soc. ent. Fr.*, **78** : 55), of Madagascar, but it resembles still more the racial form of that species (perhaps a distinct species) *C. caraboides euleptoides*, Alluaud, found in the Tanala Forest (South-East of Madagascar). *C. mauritiensis* has the pronotum slightly more elongate, the posterior angles less obtuse, the lateral border more regular

and narrower, the elytral striae deeper, the apices of the elytra rounded separately but not forming the obtuse expansions so well marked in *euleptoides*. The 2nd and 3rd joints of the maxillary palpi are still more arcuate. The eyes are noticeably smaller and less prominent. The antennae are shorter; the 1st joint is almost twice the length of 2nd joint, in *euleptoides* it is at least three times the length of the 2nd.

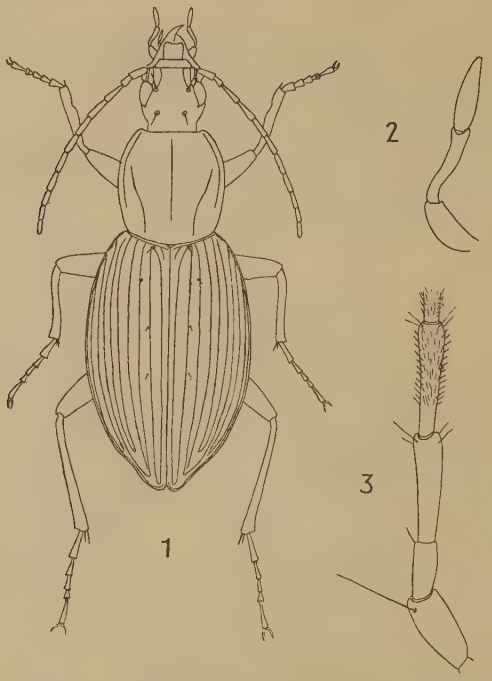


Fig. 1.—*Colpodes mauritiensis*, sp. n.; fig. 2, Maxillary palp; fig. 3, Antenna, segments 1–4.

Aephnidiinae.

Aephnidius **hypolithoides**, sp. n.

Length 4·5 mm. Reddish-brown, with a sericeous aspect due to microsculpture; pronotum ferruginous, mandibles and labrum light red, palpi, legs and antennae testaceous brown.

Head (0·83 × 1·03 mm.) smooth, eyes prominent; labrum trapezoidal with apical angles rounded; surface of mandibles convex; maxillary palpi with 3rd joint half length of 4th; antennae short, just reaching base of pronotum, 1st joint large and long, 2nd joint slightly shorter than 3rd. *Pronotum* (0·90 × 1·59 mm.) transverse, convex, basal foveae indicated only by two very shallow depressions; median line well marked but not deep, obliterated near base and apex; apical margin emarginate, anterior angles much produced, posterior angles obtuse, just rounded; base and apex slightly produced at middle, lateral margins rounded, reflexed, with a seta on each side slightly in front of the

middle point, reflexed margin thickened at posterior angles and bearing a pit (possibly indicating place of a missing seta).

Elytra (2·76 × 1·79 mm.) slightly convex, parallel-sided; shoulders nearly square but rounded; lateral margins reflexed, a large pre-apical depression near them; scutellum large; striae faintly marked, 1st and 2nd fairly distinct but 1st abbreviated near base and 2nd near base and apex, a large umbilicate pore near beginning of 2nd stria. Tibiae thorny externally, especially mid and hind tibiae, metatibial spurs unequal in length, longest less than length of first tarsal joint, front tibiae spatulate, with a few short, strong spines near apex. Microsculpture isodiametric all over the body, meshwork very dense on elytra giving a shagreened, sericeous aspect. Underside with last abdominal segment orange-red, apex of the other segments faintly tinged with reddish-yellow.

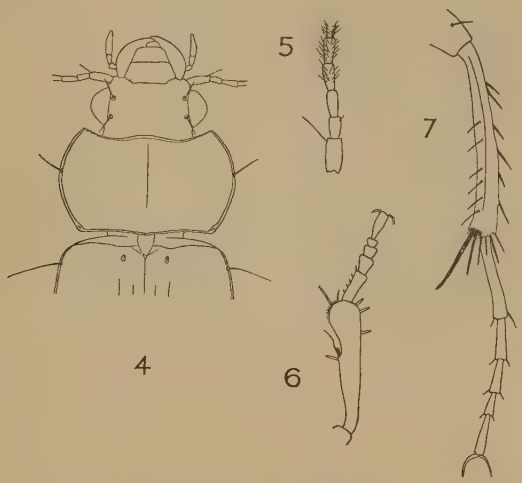


Fig. 4.—*Aephnidius hypolithoides*, sp. n.; fig. 5, Antenna, segments 1–5; fig. 6, Front leg; fig. 7, Hind leg.

Hab.—Mauritius, "Trou d'eau douce" (sea-level), viii. 1934. Under stones in a rather dry situation, collected by the author.

Near *A. rutilus*, Schaum, and *A. barbarus*, Bedel, of North Africa, but elytral striae more apparent, coloration brown rather than ferruginous. From the description, it is also probably very near to *A. opaculus*, Zimm. (= *simplex*, Schm.-Göb.), of India. Some species of *Aephnidius* are also known from Madagascar, but this new species is totally different from them.

The name *hypolithoides* is suggested by the general resemblance of this species to Carabids of the genus *Hypolithus* (*Aulacoryssus*).

Harpalinae.

Acupalpus parelaphus, sp. n.

Length 3·6 mm. Black, shiny; mandibles reddish-brown, palpi, 1st antennal joint and legs testaceous with the femora and tarsi partly blackened.

Head (0·76 × 0·76 mm.) rather long, eyes moderately prominent; labrum rounded at apex; antennae short, just reaching base of pronotum, 1st joint testaceous, remainder

blackish. *Pronotum* (0·76 × 0·90 mm.) broader in front; anterior angles not produced; base a little shorter than apex, posterior angles obtuse, broadly rounded; lateral margins reflexed, colour as rest of pronotum, a seta on each side at apical third; basal foveae broad and shallow, impunctate; median line superficial but distinct. *Elytra* (2·07 × 1·31 mm.) slightly broadened from posterior half, feebly convex; striae light, slightly sinuous, interstices with a few minute irregular, longitudinal stripes; reflexed margin, apex and suture tinged with rufous. Microsculpture isodiametric on head (just visible at × 46), finer and more irregular on pronotum, nearly wanting on elytra. Whole surface very finely punctate, punctuation very superficial and widely disposed.

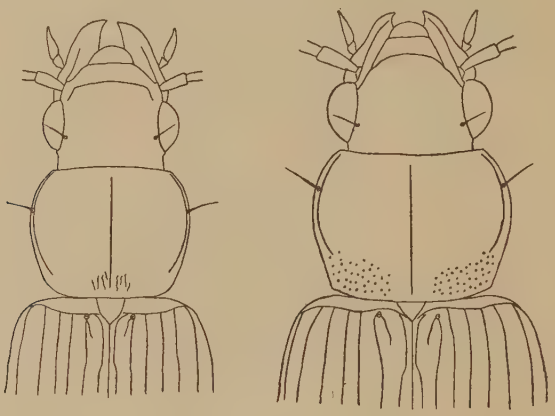


Fig. 8.—*Acupalpus parelaphus*, sp. n.; fig. 9, *Acupalpus elaphus* Alluaud.

Hab.—Mauritius, "Trou-aux-Cerfs" (1800 ft.), 9.xii.1933. Under decayed leaves, in a very damp pit (*R. Mamet*).

Near to *A. elaphus*, Alluaud, distinct by its smaller size, the posterior angles of the pronotum completely and broadly rounded, the basal foveae impunctate, the elytral striae less deep, the suture more or less rufous and the reflexed margin of the pronotum of the same colour as the rest.

A NEW CERATOPOGONID (DIPT.) FROM BRITISH GUIANA

By J. W. S. Macfie.

Forcipomyia (*Lasiohelea*) **aeronautica, sp. n.**

A small, dark brown species, closely resembling *F. papilionivora*, Edw., and *F. eques* (Johan.), but differing from them in several characters, notably in having longer and more strongly curved claws.

♀. Length of wing, about 1 mm.; greatest breadth of wing, about 0·4 mm.

Head very dark brown. Eyes contiguous above: bare so far as can be seen without treatment with caustic. Palpi darkish brown: segment 3 subcylindrical, with shallow pit in distal third; 4 and 5 sub-equal in length, together about as long as 3. Antennae darkish brown, segments 11–15 rather darker than others: basal segments slightly broader than long, 4–10 from about 6 by 8 to 7 by 8 units; * 11–14 elongate, successively longer, from about 12 to 18 by 8 units; 15 longer, about 25 units, ending in a knob-like process. The combined lengths of segments 3–10, 4–10, and 11–15 about 53, 45, and 87 units respectively. *Thorax* uniformly very dark brown. Scutellum hardly if at all paler than scutum: bearing numerous bristles and hairs. *Wings* as in *F. eques*. Halteres with darkish brown knobs which, however, contain a whitish substance. *Legs* darkish brown, unadorned: bearing (especially on the terminal segments of the tarsi) some narrow, fringed scales in addition to bristles and hairs. T. R. about 2·7. Claws (see fig.) rather long,

strongly curved, simple. Empodium relatively rather small. *Abdomen* very dark brown. Spermathecae two, highly chitinised, partly collapsed in the specimen examined, but apparently pyriform, as in *F. eques*, and about 55 μ by 40 μ.

British Guiana: Tumatumari, 21 July, 1923, 3♀♀ (*F. X. Williams*). The midges were found attached to the veins on the upper surface of the wings of a butterfly identified by Mr. G. E. Bryant as *Catoblepia xanthus*, L.

This species resembles *F. papilionivora*, Edw., a European species found on the wings of butterflies, and also, more closely, *F. eques* (Johan.), an insect found on the wings of lace-wing flies both in N. America and in Europe. A comparison with a co-type of *F. papilionivora* and a European specimen of *F. eques*, kindly furnished by Dr. F. W. Edwards, shows however a number of small differences; for example, the sensory pit in the third palpal segment is shallow and situated in the anterior third instead of being deep and central, the T. R. is somewhat greater, about 2·7 as compared with 2·3 and 2·5, the claws are much larger and more strongly curved, and the empodium is relatively smaller. It resembles also *F. pectinunguis* (de Meij.), a species found in Sumatra on the wings of moths, but the claws have not the striking and peculiar form found in that insect.

* The unit used is 3·7 μ.

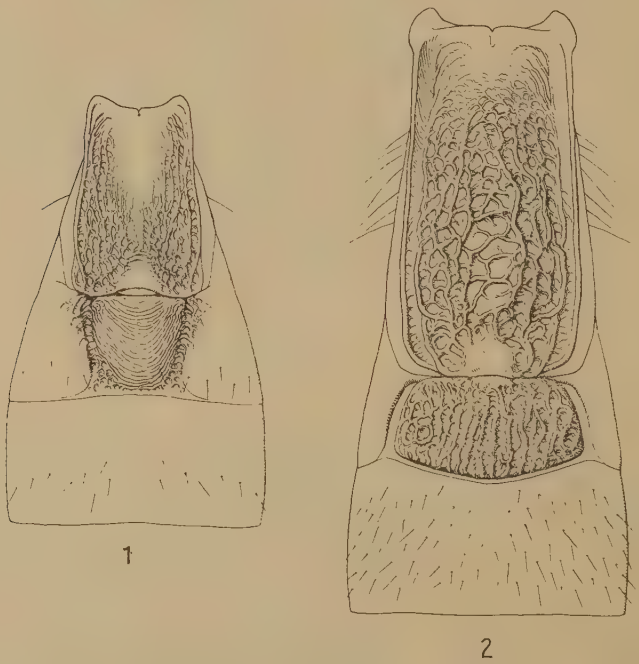
TWO NEW *APANTELES* (HYM. BRACONIDAE)

By D. S. Wilkinson, F.R.E.S.

(*Imperial Institute of Entomology*).

Apanteles menuthias, sp. n.

♀. Black; legs (save for the hind coxae basally, the hind femora apically above, the hind tibiae in about the apical third, and the hind tarsi throughout, which are darkened), tegulae, 2nd–5th tergites laterally, and the venter (except apically), red testaceous; palpi and tibial spurs probably more rightly describable as pale red testaceous than merely as pale; wing-veins, stigma, and metacarp, of a uniform, fairly light reddish-brown.



Figs. 1–2.—First, second, and third tergites of 1, *A. menuthias*, 2, *A. hymeniae*.

♀. *Head*: face minutely punctate (degree 1), the relatively unusually large facial depressions distinctly nearer to apex of clypeus than to the eyes; frons impunctate, smooth, highly shining, as is the vertex except for some minute punctures towards the sides; flagellum about as long as the combined length of head, thorax, and abdomen. *Thorax*: mesonotum punctate (degree 3), the punctures more closely placed and stronger anteriorly, posteriorly weaker and inclined to be indefinite; scutellar sulcus strongly impressed, crenulate, curved; disc of scutellum minutely punctate (degree 1); propodeon with a well-marked median longitudinal carina in at least basal half, otherwise in the basal third with the lateral thirds entirely smooth, and with the medial third (that is to say in the

neighbourhood of the median longitudinal carina) minutely rugose, in the apical two-thirds throughout with numerous, irregular, rugulose carinae which are not closely placed. *Wings*: 1st abscissa of the radial evenly rounded with, and not to be differentiated from, the transverse cubital; pigmented portion of 2nd abscissa of cubital equal in length to apical portion of 1st abscissa of cubital, decidedly shorter than recurrent, decidedly longer than upper portion of basal vein; stigma shorter than metacarp. *Legs*: hind coxae almost entirely smooth on upper half of outer faces, with perhaps some occasional obsolete striae and minute punctures, basally above with sometimes a few shallow, obsolete punctures; the longer hind tibial spur half, and the shorter spur one-third, the length of the basal joint of the hind tarsus. *Abdomen*: 1st tergite (fig. 1) excavated in the basal half, where in the medial third it is more or less smooth, and where in the lateral thirds it has fine aciculation, in the apical half or two-fifths turned over and down and decidedly rugose, but not very strongly; 2nd tergite smooth save for its well-marked discal sulci and for the regular, exceedingly fine but quite definitely marked aciculation all over its disc, this aciculation however occasionally being more or less obsolete; 2nd suture well marked; 3rd tergite longer than 2nd, and, as the succeeding tergites, entirely smooth save for a single row of exceedingly minute punctures across the apex; the ovipositor sheaths short; the hypopygium truncated.

Length, 2 mm.

MADAGASCAR: Bekily, Reg. sud de l'Ile, 12 ♀♀, ix.1933 (*A. Seyrig*).

Type and cotypes in the Paris Museum; cotypes in the British Museum.

Host unknown.

Cocoons unknown.

This species is of course referable to my *mlanje* subgroup (Wilkinson, 1932, *Trans. ent. Soc. Lond.*, **80** : 333). Of the only two species previously included therein, namely *mlanje*, Wilkn., and *neavei*, Wilkn. (1930, *Bull. ent. Res.*, **20** : 447–450), *menuthias* is probably closer to the latter : in fact *menuthias* and *neavei* have many morphological characters in which they agree with each other very closely indeed. These two species are easily separable, however, on the colour and sculpture of their hind coxae, quite apart from the shape of the 2nd tergite, which, although an excellent character, would be difficult to describe succinctly for use in a key : and both these species are immediately recognisable from *mlanje* on account of the extreme length of the upper portion of the basal vein in this latter species.

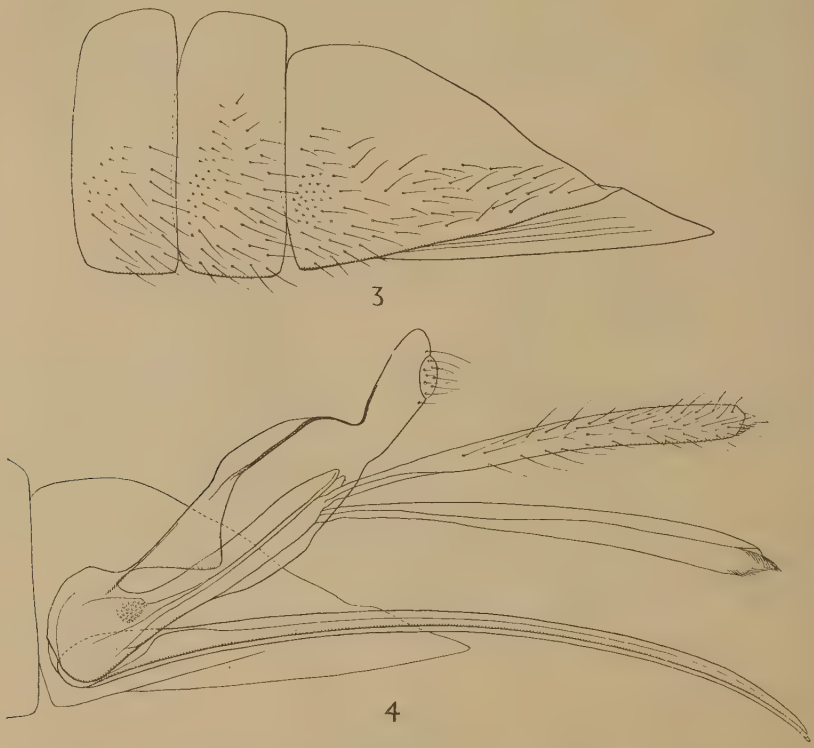
It should be noted that I have drawn up this description of *menuthias* against the description of *neavei*.

Apanteles **hymeniae**, sp. n.

♀. Black; legs throughout (save for some slight darkening on the hind tarsi and towards the apex of the hind tibiae), scape, flagellum in the basal half to some extent, tegulae, red testaceous; palpi and tibial spurs pale; the wings slightly, but distinctly, infumated evenly throughout, and the setae dark; costal veins (except at extreme base, where they are testaceous), stigma, and metacarp dark brown, the remaining veins light brown; stigma uniformly opaque.

♀. *Head*: face minutely punctate (degree 1); facial depressions about equidistant from apex of clypeus and from the eyes; frons and vertex minutely punctate; posterior ocelli nearer to each other than to the eyes; flagellum about equal to the combined length of head, thorax, and abdomen. *Thorax*: mesonotum with strong (degree 4), rather closely placed punctation, which along the lines of the notauli is stronger (degree 5) again and more closely placed, save posteriorly where the punctures tend to form coarse longitudinal

striae; scutellar sulcus straight, broad, and with 8–9 deep crenulations; disc of scutellum with some coarse, strong punctures (degree 4); the non-excavate area of the lateral faces of the scutellum reaching half-way up towards base of scutellum, the excavate area throughout with carinulae which are all more or less equal in strength and which are all very regularly placed; propodeon with a very well-marked areola, the carinae of the areola and the costulae being very strong; the areola itself is entirely smooth and highly shining, and would be more or less diamond-shaped were it not that its apex is only acutely U-shaped, and were it not that its base is not closed and complete since the areola is connected with the base



Figs. 3–4.—*A. hymeniae.* **3**, hypopygium and apical ventrites, **4**, female genitalia.

of the propodeon by a fairly broad, sunken channel which is bordered by strong carinae and which contains some rugae; costulae horizontal; the propodeon apically to the costulae on each side of the areola shining and with widely placed strong rugae, basally to the costulae on each side of the median channel more closely rugose than apically and duller. *Wings*: the 1st abscissa of the radial slightly curved, long, considerably longer than the straight transverse cubital (20 : 8), their point of junction distinct and with commonly some thickening exteriorly; the apical portion of the 1st abscissa of the cubital half the length of the radial and therefore longer than the transverse cubital, which is longer than the pigmented portion of the 2nd abscissa of the cubital, which latter is equal to the upper

portion of the basal vein; the recurrent about equal in length to the breadth of the stigma, which is about four-fifths the length of the radial; stigma shorter than metacarp. *Legs*: hind coxae more or less throughout minutely punctate and aciculate, and dull; the longer hind tibial spur half, and the shorter spur one-third, the length of the basal joint of the hind tarsus. *Abdomen* (fig. 2): 1st tergite in the basal fourth excavate and comparatively smooth, in the apical three-fourths tumescent and regularly turned over and strongly rugose, in the apical three-fifths (or half) with an elongate middle-field which is often much in evidence but which is as often poorly marked or even obsolete; 2nd tergite strongly rugose, but not so strongly as the 1st; 3rd and succeeding tergites smooth save for widely spaced minute (degree 1) punctation throughout; all ventrites, save the 1st and perhaps the 2nd, with a median longitudinal suture; ovipositor sheaths equal in length to the hind femora; hypopygium membranously acute.

Length, 3 mm.

Fiji Is.: Taveuni, 9 ♀♀ (one the *type*), 1931, Taveuni, Bucalevu, 1 ♀, xii.1931 (*R. W. Paine*).

Type deposited in the British Museum.

Host. All the above material is labelled to have been bred from the Pyralid, *Hymenia fascialis*, Stoll, now *recurvalis*, F., on silver beet.

Cocoons white.

This new species is very distinctive, and it runs in my key (1932, *Trans. ent. Soc. Lond.*, **80**: 326–343) to couplet 133, which consequently will have to be altered, as follows:—

133. Second tergite sculptured . . . . . 133*a*.
Second tergite smooth, at most with minute punctation . . . . . 134.

133*a*. Areola invariably complete, its carinae and the costulae very strong; 2nd tergite of female with apical breadth less than twice median length . . . . . *hymeniae*, Wilkn.
Areola, its carinae, and the costulae, not so describable; 2nd tergite of female with apical breadth greater than twice median length *eros*, Wilkn.

Apanteles salutifer, Wilkinson 1931.

Burma: Mandalay, 13 ♀♀, 5 ♂♂, 12.xi.1923, 19.xi.1923, 4 ♀♀, 1 ♂, 31.xii.1923, 8 ♀♀, 8.vii.1929 (*C. C. Ghosh*).

Host. The series dated November, 1923, bears the serial number CS. 244 and is recorded as a parasite of the Pyralid "*Glyphodes polyoalis*" on mulberry leaves, by which name doubtless is meant *G. pyloalis*, Walk. The series dated 1929 bears the serial number CS. 992, but is without host record, while the remaining series is numbered CS. 275 and is recorded on a Pyralid larva on guava leaves.

Cocoons pure white.

Apanteles salutifer was originally described from Bangkok, Siam, and as a parasite upon an undetermined caterpillar feeding on *Sandoricum indicum*. The Pyralid, *G. pyloalis*, is the first specific host record.

NEW BARKBEETLES AND AMBROSIA-BEETLES (COL.)

By Karl E. Schedl.
(*Munich.*)

Xyleborus **percorthylus,** sp. n.

♀. Yellowish-brown, 3·75 mm. long, 2·29 times as long as wide. A species with a rather uncommon development of the elytral declivity.

Front convex, densely roughly punctured and with scattered yellowish hairs. *Pronotum* wider than long (17 : 14·5), postero-lateral angles rectangular, hardly rounded, sides parallel on the posterior third, from there broadly curved to the apex, the latter unarmed, surface strongly convex, summit behind the middle, anterior area steep and densely finely asperate, posterior area densely finely somewhat roughly punctured and shining. Scutellum not visible. *Elytra* as wide and 1·7 times as long as the pronotum, sides parallel on the anterior third, on the disc from here suddenly very deeply sulcate to the apex, side margins of this deep sulcus acute and gradually becoming the lateral and apical margins of the elytra, at the apex each elytron broadly separately rounded thus forming a very shallow emargination at the suture, fundus of the sulcus very densely covered with short yellowish scales, the striae impressed and devoid of scales, lateral margins of the sulcus unarmed but with a fringe of long erect hairs, remaining part of the elytra finely, irregularly punctured and sparsely pubescent. The deep sulcus is rather remarkable; similar developments occur in some species of the Corthylinae.

Types in the British Museum (presented by the Imperial Institute of Entomology) and in my collection.

Locality. F.M.S. : Bt. Enggany, Meranti, 10.iv.1930 and Selangor, Bangi Mercanti, ex fresh felled log, 29.ii.1929 (*M. L. Webber*).

Xyleborus **obstipus,** sp. n.

♀. Dark reddish-brown, 6·2 mm. long, 2·20 times as long as wide. Allied to *X. batoensis,* Egg.

Front feebly convex, shining, rather densely punctured, the eyes comparatively small, not approximate in front. *Pronotum* longer than wide (26 : 24), postero-lateral angles acute, rectangular, widest near the base, sides broadly arcuate, uniformly rounded to the apex; anterior margin feebly extended in the middle, summit in the posterior third, densely finely asperate in front, granulate punctate behind. *Elytra* wider (29 : 26) and 1·95 times as long as the pronotum, sides parallel on the basal half, thence narrowed, apex rather narrowly regularly rounded, each elytron again somewhat separately rounded thus forming a shallow obtuse emargination at the suture; cylindrical on more than the basal half, obliquely declivous behind, feebly concave on the lower half of the declivity and with the margin of the concavity acute up to the 7th interstice; disc finely lineate punctate, interspaces flat, shining, irregularly biseriately punctured, declivity with the punctation confused.

Types in the British Museum (presented by the Imperial Institute of Entomology) and in my collection.

Locality. Malay Penins. : Pahang, Fraser's Hill, 4000 ft., 2.vii.1933; Cameron's Highlands, at light, 4800 ft., 15.vi.1923 (*H. M. Pendlebury*).

Xyleborus **sexspinatus,** sp. n.

♀. Reddish-brown, 7·08 mm. long, 2·43 times as long as wide. A very distinct species. *Front* plano-convex, sparsely punctured below, more densely above, with a shining median groove on the anterior half. *Pronotum* wider than long (30 : 25), postero-lateral angles broadly rounded, sides broadly arcuate, anterior margin subtransverse; globose, summit in the middle, anterior area very steep, flattened and perpendicular at the middle above the feebly serrate anterior margin, densely finely asperate, posterior area shining, very finely punctate, the punctures more numerous on the sides. Scutellum very small, transverse. *Elytra* nearly as wide (29 : 30) and 1·88 times as long as the pronotum, sides subparallel, slightly arcuate, on the basal half, feebly constricted behind, strongly angulate towards the apex; deeply sulcate from a little behind the base, towards the declivity gradually flattening out and feebly convex in the lower half of the latter, the side margins acute and elevated in the median third of the elytra and armed with five large teeth which are directed inward, laterad and on a short area below the teeth with smaller irregularly placed granules, the declivital face opaque, irregularly, finely and densely punctured, with rows of small setose granules which indicate the interspaces; disc of the elytra shining, striate punctate, punctures densely placed, interspaces very wide, subconvex, impunctate; the apical margin acute up to the 7th interspace.

Types in the British Museum (presented by the Imperial Institute of Entomology) and in my collection.

Locality. F.M.S.: Selangor-Bangi, Meserenti (Kepong), 28.ii.1929 (*M. L. Webber*); Rotan-Junggal F. R. ex *Shorea parvifolia*, 29.iii.1933 (*F. G. Browne*).

Xyleborus **macropterus,** sp. n.

♀. Reddish-brown, 4·9 mm. long, 2·75 times as long as wide. Rather closely allied to *X. major*, Stebb., and *X. pseudomajor*, Egg. From the former it is easily separated by the more slender form, from the latter by the shape and sculpture of the elytra.

Front plano-convex, rather densely coarsely punctured, the eyes approximate in front as in its allies. *Pronotum* as long as wide, base transverse, postero-lateral angles hardly rounded, rectangular, sides feebly arcuate, apical margin broadly rounded, extended in the middle and armed with several small slender asperities, surface moderately convex, summit at the middle, anterior area finely densely asperate, posterior area shining, very finely and sparsely punctured. *Elytra* at the base distinctly narrower, before the declivity as wide and 1·77 times as long as the pronotum, sides feebly arcuate, angulately rounded behind; cylindrical on the basal half, gradually declivous and convex behind; disc lineate punctate, punctures very shallow, and disc-like throughout, interspaces rather wide and flat, uniseriately punctured, the punctures of the striae and interstices larger, deeper and rather irregularly placed near the base; on the declivity the suture strongly the other interspaces feebly but distinctly elevated, the interspacial punctures replaced by setose granules, on the first two interstices these granules occur on the entire apical two-thirds of the elytra, on the other on a space gradually diminishing in length towards the sides, apical margin acute and with a dense row of granules up to the 7th interspace.

Types in the British Museum (presented by the Imperial Institute of Entomology) and in my collection.

Locality. Malay Penins.: Sungar-Liang, ex *Shorea macroptera*, 14.ii.1933; Jersang F. R., ex *Shorea aericea*, 13.iv.1933; Iranum, *Balanocarpus heimii*, 15.ii.1933 (*F. G. Browne*).

Xyleborus **okouméensis,** sp. n.

♀. Dark reddish-brown when mature, 2·40 mm. long, 2·25 times as long as wide. The next relative of this species is *X. semiopacus*, Eichh., from Formosa. It is distinguished

from the latter by its more cylindrical shape, the elytral declivity commencing behind the middle, the stouter pronotum and the sculpture of the declivity.

Front convex, densely roughly punctured and with a short narrow median carina on the anterior third. *Pronotum* wider than long (35 : 30), base transverse, sides subparallel feebly arcuate on the basal half, thence broadly rounded towards the apex, apical margin very feebly extended and armed with few small asperities; moderately convex, summit at the middle, anterior area finely densely asperate, posterior area densely rather coarsely punctured. *Elytra* but little wider and 1·66 times as long as the pronotum, sides parallel on more than the basal half, broadly rounded behind, disc densely irregularly and roughly punctured with no indications of striae, declivity broadly convex, opaque, densely covered with small granules those indicating the striae arranged in regular rows, apical margin acute up to the 7th interstice.

Types in my collection.

Locality: ex imported Okoumé logs, Carlshafen, Hessen-Nassau, 1928 (*B. Folwaczny*). Some specimens were also taken under bark of Gabun logs.

Scolytus **antennatus,** sp. n.

Reddish-brown, the elytra with a paler wavy transverse band, 2·64 mm. long, 2·20 times as long as wide. A species which is easily recognisable by the peculiar punctuation of the elytra and the extremely large antennal club.

Front feebly convex, transversely depressed above the epistomal margin, finely punctured, the punctures longitudinal, sparsely covered with long hairs which are directed towards the mouth, the antennal club more than twice as long as the funicle and the scape together and long oval. *Pronotum* wider than long (38 : 34), base bisinuate, postero-lateral angles rounded, sides convergent and feebly arcuate towards the antero-lateral angles, thence strongly constricted and the apical margin narrowly rounded, surface shining, coarsely punctured, punctures more densely placed and coarser on the anterior constriction. *Elytra* wider (40 : 38), and 1·40 times as long as the pronotum, lineate punctate, the punctures very large near the base, decreasing in size towards the middle, hardly distinguishable near the apex, interstices flat, impunctate except for a few fine punctures near the base. Apical margin densely coarsely punctured. Abdomen moderately steep, subopaque, finely punctured, with a compressed tooth in the middle of the second sternite.

Type in my collection.

Locality. Brazil: São Paulo.

Scolytus **nevermanni,** sp. n.

♂. Black, 3·45 mm. long, twice as long as wide. Allied to *S. dimidiatus*, Chap., but with other frontal characters.

Front subshining, feebly convex, with a tooth-like transverse process in the middle, below it simply, above wrinkled, punctured. *Pronotum* but feebly wider than long, base transverse, postero-lateral angles feebly rounded, sides convergent and feebly arcuate towards the antero-lateral angles, thence constricted and the anterior margin broadly rounded; surface feebly convex, anteriorly more densely and coarsely, posteriorly more sparsely and finely punctured, base finely margined. *Elytra* as long and but little wider than the pronotum, regularly lineate punctate, the striae feebly impressed, the interstices shining, flat and uniseriately more finely punctured; abdomen opaque, finely punctulate, with a compressed tooth near the lower border of the second sternite.

♀ of the same general appearance as ♂, but the abdominal tooth is smaller, the front more flattened, finely reticulate, punctured, with a cordiform impunctate space in the middle.

Types in my collection.

Locality. Costa Rica : Hamburg farm, Ebene Limon, 3.xii.1924 (♀) and Bananito near Limon (♂) (*F. Nevermann*).

Scolytodes **elongatus,** sp. n.

Black, 2·40 mm. long, 2·22 times as long as wide. Somewhat similar to *Ctenophorus laevigatus*, Ferr., but larger, the pronotum more parallel-sided, and the elytra more elongate.

Front flat, epistomal margin and a short wide space towards the middle elevated, smooth and impunctate, above the epistomal margin and the process depressed and densely deeply punctured. As far as can be seen the eyes are approximate above. *Pronotum* subshining, feebly convex, base transverse, postero-lateral angles rounded, sides subparallel feebly arcuate on more than the basal half, shortly before the broadly rounded anterior margin feebly constricted, finely reticulate, very finely and sparsely punctured and without visible pubescence. *Elytra* wider (36 : 30) and 2·40 times as long as the pronotum, widest at the middle, humeral angles rectangular, sides feebly arcuate, regularly and somewhat narrowly rounded behind; disc horizontal on more than the anterior half, uniformly convex behind, moderately finely punctured, the punctures larger on the first three rows, decreasing in size towards the sides, interspaces reticulate, uniseriately and finely punctured, the punctures of the first two interstices coarser on the disc, all interspacial punctures becoming smaller towards the declivity.

Type in my collection.

Locality. Brazil.

Cnesinus **grandis,** sp. n.

Dark reddish-brown, 4·10 mm. long, 2·30 times as long as wide. The largest species hitherto described, easily recognisable by its sculpture.

Front above the narrow epistomal margin depressed on a triangular space, from the anterior margin of this arises a mass of dark reddish-brown hairs, above between the eyes elevated, shining and impunctate on a subcircular space, towards the vertex opaque and densely roughly punctured. *Pronotum* as long as wide, very feebly convex, base transverse, sides straight and feebly divergent on the basal two-thirds, anterolateral angles oblique, anterior margin transverse, surface opaque, densely granulate punctate. *Elytra* wider (18 : 16) and 2·1 times as long as the pronotum, base crenulate, humeral angles rounded, sides feebly arcuate, at the apex obliquely angulate, at the extreme tip each elytron separately narrowly rounded thus forming a very shallow emargination at the suture; disc striate-sulcate, the sulci wide but shallow, the fundus opaque densely granulate-punctate, interstices convex, irregularly densely punctured, from both the interstices and the sulci arise long reddish inclined hairs, declivity commencing in the apical third, convex, strongly oblique, flattened and feebly depressed up to the third interstices, the punctures of the narrower sulci large and uniseriate, the interstices narrower and more strongly convex, the first three extending in straight lines to the apical margin, the others consequently shortened. Abdomen feebly ascending, opaque, densely punctured.

Type in my collection.

Locality. Brazil.

Hexacolus **brasiliensis,** sp. n.

Black, 2·40 mm. long, 2·1 times as long as wide. Allied to *H. striatus*, Egg., but much larger, with finer punctuation of the pronotum and with granulate interstices of the elytra.

Front feebly convex, very strongly roughly punctured, at the centre with a short transverse groove, above this the convex front subopaque, finely punctulate, densely moderately coarsely punctured and with the median line elevated. *Pronotum* wider than long (35 : 30), base bisinuate, sides parallel on the basal half, broadly rounded in front a constriction in the anterior third is hardly noticeable; surface feebly convex, subshining, densely minutely punctulate, finely granulate on the anterior third, rather densely punctured behind. Scutellum very small, triangular. *Elytra* wider (39 : 35) and 1·70 times as long as the pronotum, widest behind the middle, sides straight on little more than the basal half, broadly rounded behind, declivity commencing at the middle, convex, very feebly flattened; striate-punctate, the first striae strongly, the others feebly, impressed, strial punctures somewhat irregularly placed, interstices shining, flat, uniseriately somewhat irregularly punctured, on the declivity the striae more strongly impressed, the interstices becoming feebly convex and the punctures replaced by regular rows of small granules.

Type in my collection.
Locality. Brazil.

Hexacolus **frontoglabratus,** sp. n.

Dark reddish-brown, 2·1 mm. long, 2·14 times as long as wide. Similar to *Scolytodes pseudoacuminatus*, m., but smaller and with different sculpture.

Front feebly convex, with an elongate shining and polished space just above the epistomal margin, remaining surface densely roughly punctured and sparsely hairy. *Pronotum* subopaque, wider than long (31 : 26), base bisinuate, sides feebly convergent and feebly arcuate on more than the basal half, thence constricted and with the anterior margin narrowly rounded; surface moderately convex, finely transversely asperate on the anterior half, minutely punctulate and densely punctured behind. Scutellum rather large, transverse. *Elytra* wider (34 : 31) and 1·76 times as long as the pronotum, widest behind the middle, sides nearly straight, broadly rounded behind, declivity commencing at the middle, convex and rather steep; lineate punctate, the first row feebly impressed the punctures rather irregularly placed, interstices flat, shining, irregularly densely punctured, near the suture the punctures but little smaller than those of the rows, on the declivity the punctures becoming smaller, on the upper half of the convexity feebly depressed along the suture and with the punctuation rather confused.

Type in my collection.
Locality. Argentine: San Ignacio (*Louis Bade*).

Crossotarsus **kokodaensis,** sp. n.

♀. Head and pronotum reddish-brown, elytra decidedly darker, 4·3 mm. long, 4·00 times as long as wide. This species must be placed provisionally in the Crossotarsi incertae sedis.

Front flat, shining, transversely impressed above the sparsely punctured epistomal margin, depression sparsely and finely punctured in the middle, impunctate at the sides and with coarse punctuation above it. *Pronotum* much longer than wide (15 : 11), femoral grooves well developed, median sulcus very fine and long, extending beyond the basal half, surrounded by an egg-shaped patch of fine punctures, the narrower pole directed towards

the base. *Elytra* as wide and 1·72 times as long as the pronotum, base carinate, sides parallel on more than the basal half, convergent behind, the apex consisting of three equally long lobes when viewed from above, the median lobe formed by the narrowly rounded apical margin, the side lobes produced by the declivital convexity which is separated from the triangular subperpendicular apical face by rather deep grooves; elytral disc lineate punctate, the first row impressed, interspaces flat and impunctate, the base of the third widened, and with coarse transverse rugae, the fifth with similar sculpture but on a much smaller area, declivity obliquely convex, roughly punctured and with short yellow hairs the apical face shining, the suture elevated.

Types in the British Museum (Natural History) and in my collection.
Locality. Papua: Kokoda, 1200 ft., viii.33 (*L. E. Cheesman*).

Crossotarsus **cheesmani,** sp. n.

♂. Reddish-brown, 8·1 mm. long, 3·2 times as long as wide. Closely allied to *C. sarculus*, m., but with different declivital armature.

Front flat, shining, coarsely but rather sparsely punctured, the punctures decreasing in size towards the vertex. *Pronotum* quadrate, shining, finely reticulate, sparsely finely punctured, femoral grooves well developed, the anterior angles subacute, median sulcus very short. *Elytra* wider (26 : 22) and 2·5 times as long as the pronotum, sides parallel on the anterior half, feebly convergent behind, with long lateral processes; cylindrical on more than the basal half, obliquely convex behind, with a lunate depression at the apex; disc finely lineate punctate, the first row impressed, interstices flat, shining, very sparsely and finely punctured, base of the third widened and with a few coarse punctures; on the declivital convexity all striae deeply impressed, the punctures large but hardly recognisable, interstices convex, covered with setose granules, lunate depression shining, upper surface of the lateral processes with few setose granules, the apical margin between the processes wide, transverse, with a small tooth at the lateral corner.

Types in the British Museum (Natural History) and in my collection.
Locality. Papua: Mt. Tafa, 8500 ft., iii.34 (*L. E. Cheesman*).

A specimen from an old collection from N. Guinea in my possession might be regarded as the ♀ of this species. It is somewhat larger, more slender, front more sparsely punctured, with a median impressed puncture. Pronotum and elytra similar to the ♂, declivital convexity less coarsely granulate, the striae not distinctly impressed, the lunate depression shining; with some coarse tubercles, the lateral processes very short and blunt.

Platypus lucasi, Chap.

♀*. Reddish-brown, 7·9 mm. long, 3·4 times as long as wide.

Front subshining, of a silky appearance, finely sparsely punctured and feebly elevated below the articulation of the antennae, flat, very feebly depressed, opaque and shallowly areolate above, the median line finely carinate at the middle, subcarinate above, feebly elevated but wide and shining on the vertex, the latter not distinctly separated from the front, shining, densely and coarsely punctured at the sides. Eyes large, antennal scape triangular, large, as wide as long. *Pronotum* little longer than wide, femoral grooves not visible when viewed from above, median sulcus long but inconspicuous, surrounded by a stout cordiform patch of fine densely placed punctures, surface finely reticulate, shining,

* Hitherto unknown.

sparsely finely punctured. *Elytra* wider (24 : 21) and 2·2 times as long as the pronotum, sides parallel, somewhat convergent behind, cylindrical on the basal two-thirds, convex behind; disc striate-sulcate, sulci narrow, strial punctures hardly recognisable, interspaces convex, shining, subimpunctate, base of the third widened, from the second to the fifth densely granulate; declivity irregularly covered by setose granules, apical margin somewhat extended downwards and transverse, the subtriangular, perpendicular apical face with the suture elevated, shining, remaining surface more finely and densely granulate.

Types in the British Museum (Natural History) and in my collection.
Locality. Papua: Kokoda, 1200 ft., viii.33 (*L. E. Cheesman*).

Spathidicerus **papuanus,** sp. n.

♂. Reddish-brown, 4·65 mm. long, 4·8 times as long as wide. Of the same appearance as most species of the genus *Periomatus*, Chap., a genus that most probably will have to be withdrawn in the near future.

Front shining, depressed below, convex above, along the epistomal margin with an irregular double row of fine deep punctures, coarsely densely punctured on the upper convexity, with a long median carina at the centre, gradually rounded towards the vertex. *Pronotum* 1·5 times as long as wide, femoral grooves long but shallow, median sulcus hardly visible, surface shining and impunctate. *Elytra* wider (10 : 9) and 2·1 times as long as the pronotum, widest near the apex, disc striate-sulcate, sulci narrow, decreasing in depth towards the sides, interstices convex on the disc flat on the sides, base of the third but little widened, and punctured, declivity sloping, lateral processes long, sutural angle produced into a short tooth, another small serration in the continuation of the third interstice, towards the declivity the interstices alternate but the even ones more strongly developed and carinate, the second the longest, projecting beyond the oblique declivital face as a blunt tooth, the fourth similar but shorter, the sixth longer than the first, the interstices 1, 3, 5 decreasing in height towards the declivity, declivital face shining.

Types in the British Museum (Natural History) and in my collection.
Locality. Papua: Kokoda, 1200 ft., viii.33 (*L. E. Cheesman*).

INDEX

New names are printed in heavy type throughout.

COLEOPTERA.

Acupalpus **parelaphus,** Mauritius, 263; *elaphus* 264.

Aephnidius 263; **hypolithoides,** Mauritius, 262; *rutilus, barbarus, opaculus* (*simplex*) 263.

Agrilus, 141.

Alloparnus (see *Protoparnus*).

Anomala (*Aprosterna*) **meggitti,** Burma; *semiusta* 153.

Antodice **fasciata,** Mexico; *cretata, nympha* 113.

Araecerus fasciculatus, 146.

Arrowinus gen. n., 214–216; **phaenomenalis** 216, Natal.

Asidoblaps, generic characters, 161; table of spp., 161–162; **subopaca, polita,** China, 162; *davidis* 161, redescription 163, 164; *glyptoptera* 161, redescription 164; *szetschwana* (see *Itagonia*).

Asthenorhella, note on; *leonina* 101.

Atractocerus, specific characters, 70; **quercus,** United Provinces, larva, pupa 69; *reversus, emarginatus, brevicornis, niger, crassicornis, kreuslerae* 70.

Aulacocyclus, 227–233; *errans* (*fracticornis, arcuatoclypeatus, rotundatoclypeatus*), Blackburn's description and redescription, 227, distribution; *rosenbergi* 228; key to non-Australian spp., 228–229; **zangi,** New Guinea, 230; *tricuspis* (*fortis, severini, puncticollis*) 229; *felderi; andrewesi* 230; *papuanus* 231; *glabriusculus; perlatus* (*parryi, dilatus, aruensis, variolosus*) 232; *celebensis; pugnax; rouzi* 233, notes on: *gravelyi,* 231, *edentulus* 233.

Aulacoryssus (see *Hypolithus*).

Belonuchus **bipunctatus,** Columbia; **piceolus,** Brazil, 90; **gowdeyi,** Jamaica; (*Musicoderus*) **ecuadorensis,** Ecuador, 91; *haemorrhoidalis, viridipennis* 90, *convexus* 91.

Byrrhomorphus (see *Lutrochous*).

Callispa (**Callispella** subgen. n.), key to African spp., 255; **ugandina,** Uganda, 256; **cavicollis,** South Africa, 257; **marshalli, fulvipes** 258, **mashonensis** 259, Mashonaland; **neavei** 258, **nyassica** 259, **angonina** 260, Nyasaland; **rhodesiaca,** S. Rhodesia, 260; *gracilicornis, bayoni, schoutedeni, sebakuensis, limbata, nigripes, similis, natalensis, hessei, bottegoi, silacea, semirufa* 255, *errans, africana, bicoloripes, nyakaensis, umtalina, intermedia* 256, *testacea* 255, 257, *unicolor, kuntzeni, kilimana* 255, 258, *rufiventris* 256, 259, *australis* 256, 260.

CARABIDAE, new, from Mauritius, 261–264.

Chakriia gen. n.; key to spp., 141; **ruficolla, prachadhipoka** 142, Siam.

Chelonarium, 66.

Cnesinus **grandis,** Brazil, 273.

Coelocnemodes, 164.

Colobothea unilineata & subsp. **fasciatipennis,** Canal Zone, 112; *chontalensis* 112, 113.

Colpodes **mauritiensis,** Mauritius; *caraboides* (with var. *euleptoides* 261, 262) 261.

Copelatus, 191.

Crossotarsus **kokodaensis** 274, **cheesmani,** Papua; *sarculus* 275.

Ctenophorus laevigatus, 273.

Cylindrataxia salicicola, 112.

Cylloepus, 179.

Cymindis; *quadrimaculata* 201.

Cymindoidea, generic characters, 201; key to Indian; *indica, distigma, aequa, manda, nigra* 202.

Cyphonocephalus, note on; *smaragdulus, olivaceus* 101.

Deliathus **albidus,** Mexico; *batesi* 111.

Derelomorphus eburneus, 140.

Derelomus 138, 139, 140; **productus,** S. India, 138; **turneri,** Cape Province, 139; *cervicalis, bicarinatus, incognitus* 139; *plagiatus, kamerunicus, singularis, subvittatus, bilineatus* (see *Prosoestus*).

Dila, 164.

DRYOPIDAE, discussion of subfamilies, 173.

Dryopidius (see *Elmomorphus*).

Dryopoidea, notes on, and correction of errors, 169–179.

DYTISCIDAE, proventriculus as a taxonomic character in (2nd note), 191.

Eburodacrys **topographicus,** Panama Canal Zone; *coalescens* 109.

Elaphidion mimeticum, 109.

Eleodes, distribution, 156; **omissoides, punctigera** 157, **compressitarsis** 158, Mexico; *carbonaria* 157, *longicollis* 157, 158, *tibialis* 159.

Elmis, characters; *addenda, ornata* 177; *koebelei, divergens, tardellus, ovalis, elegans, quadrimaculatus* (see **Heterlimnius**); *pusillus, inaequalis, distortus, foveatus, similis* (see **Microcylloepus**).

Elmomorphus (*Dryopidius*) **substriatus,** Java, 170; **prosternalis,** Siam Peninsula; **bryanti,** Malaya; *truncatus* 171, *castaneus* 172.

Embaphion **mexicanum,** Mexico; *contusum* 160.

Epierus **foveolatus,** Mexico, 57; *lucidulus, vagans, lucens* 58.

Euaesthetus, 214.

Eupogonius **vandykei** 111, **triangularis** 112, Mexico; *comis* 111, 112, *subaeneus* 112.

Gnaptor, 164.

Gnaptorina (*Tagonoides*), 164.

Heterachthes validicorne, comparison with *Ibidion x-notatum,* 110.

Heterlimnius gen. n., type *Elmis koebelei*; (*E.*) *divergens,* (*E.*) *tardellus,* (*E.*) *ovalis,* (*E.*) *elegans,* (*E.*) *quadrimaculatus*; (*Limnius*) *cryophilus,* (*L.*) *subarcticus,* (*L.*) *trivittatus* 178.

Hexacolus **brasiliensis**, Brazil; **frontoglabratus**, Argentine; *striatus* 274.
Hexanchorus **tibialis**, Bolivia, 176; *gracilipes* 177.
Hoplandria, key to spp., 92–93; **tubericollis**, **janeiroensis** 93, **brasiliana**, **tuberiventris**, **impressicollis**, **piceobrunnea** 94, S. Brazil; *aleocharoides* 92, *skalitzkyi*, *analis*, *schusteri* 93.
Hydora 173; (*Stetholus*) *laticeps*, *angusticollis* (*vestita*) 174.
Hypolithus (*Aulacoryssus*), 263.
Ibidion **x-notatum**, British Honduras, 109; comparison with *Heterachthes validicorne*, 110.
Itagonia (*Asidoblaps*) *szetschwana*, *gnaptorinoides*, *ganglbaueri*, *semenowi* 164, 165.
Kingiolus 177, 178.
Lachnosterna (*Phytalus*) **arrowi** 206, **bahiana** 207, Brazil; **uruguayana**, Uruguay; *paraguayensis*, *luridipennis* 206.
Latelmis, 178.
Leptelmis, 179.
Lepthispa clavareaui, *rufícollis* 257.
Limnius cryophilus, *subarcticus*, *trivittatus* (see **Heterlimnius**); *mexicanus*, *vandykei* (see **Microcylloepus**).
Lophobaris piperis, 146.
Lutrochus (*Byrrhomorphus*) *vestitus*, 173.
Malacoscylus **usingeri**, Mexico; *humilis*, *bivittatus* 113.
Mataeopsephenus **granulicollis**, Japan, 169; *nitidipennis* 170.
Melittomma insulare, *sericeum* 70.
Meredolus gen. n.; **cocotis**, Solomon Islands, 140.
Microcylloepus gen. n., 178, type *Elmis pusillus*; (*E.*) *inaequalis*, (*E.*) *distortus*, (*E.*) *foveatus*, (*E.*) *similis*; (*Limnius*) *mexicanus*, (*L.*) *vandykei* 179.
Narpus, 177.
Narycius, note on; *opalus* 101.
Nodocnemus, 140.
Octavius, 214.
Ophistomis **nigrita**, British Honduras; *ruficventris* ♀ and ♂ from British Honduras; *lachrymans* 110.
Otidognathus **rarus**, China; **nemorivagus** 154, **satelles** 155, Assam; *turbatus* 156.
Parnida (see *Protoparnus*).
Pelonium **gardneri**, Madras; *extraneum*, *gorhami* (*lividum*) 35.
Periomatus, 276.
Phanolinus **bolivianus**, Bolivia; *magnificus* 91.
Phelister **impunctipennis** 58, **rubidus**, **pusillus** 59, **subgibbosus** 60, **tristriatus** 64, Mexico; **interruptus**, Panama; **blairi** 61, **carinullus** 62, **bistriatus** 63, **puncticollis** 64, Brazil; *brevistrius* 59, 64, *brevis* 59, 61, 62, *teapensis* 59, *erraticus*, *geometricus* 60, *omissus*, *columbiae* 61, *finitimus* 62, *desbordesi* 63, *daugar* 63, 64, *interrogans* 65.
Philonthus **cyaneoaureus**, Venezuela; *godmani* 90.
Phyllotreta **turneri**, S.W. Africa, 183.
Pityogenes calcaratus, 72.
Platynocephalus, note on; *hamiltoni* 101.
Platypus **lucasi**, Papua, 275.
Platytarus, generic characters, 201; key to Indian, 202; **bucculentus**, United Provinces; **dicraeus**, India, 203; *boysi*, *planulatus*, 202, *porcatus* 203.
Polylobus **longicornis**, **horni** 95, **curticollis**, **darwini** 96, Chile; **arrowi**, **fortepunctatus**, Argentine, 95; **mexicanus**, Mexico, 96; *bicolor* 95, 96, *netolitzkyi* 95, *luctuosus* 96.
Potamophilinus 173; key to spp., 176; **costatus** 174, **tuberculatus**, Ceylon; **spinicaudus**, 175, Sierra Leone; *perplexus* 174, 176, *longipes* 175, 176, *notabilis*, *javanicus*, *orientalis* 176.
Potamophilus papuanus (*acuminatus*), 173.
Prosoestus, characters and habits, 138; **minor**, Gold Coast, 137; *sculptilis*, *furcatus*, (*Derelomus*) *plagiatus*, (*D.*) *kamerunicus*, (*D.*) *singularis*, (*D.*) *subvittatus*, (*D.*) *bilineatus* 138.
Protoparnus (*Parnida*, *Alloparnus*), 172.
Pseudochelonarium, distinguishing characters from *Chelonarium*, 66; **Neochelonarium** subgen. n. (type *orientale*), 67; table of spp. belonging to subgen. *Pseudochelonarium* s. str., 67–68; **discomaculatum**, Malacca, Borneo; **nigratum**, Borneo; **arrowi**, Birmanie, 67; **dohertyi**, Birmanie, British Bootang; **subhirtum**, **aureovestitum**, **assamense**, Assam; **consimile**, Java, 68; *hirsutum* 66, 68, *unifasciatum*, *villosum* (*dorsale*), *fascicolle* 67, *maculosum*, *mequignoni*, *hirtum* (with subsp. n. **oberthüri**, Java), 68.
Purpuricenus indus (*haussknechti*), description of ♂, 189; ♀; distribution 190; abb. **intermedius**, Peshawur; **gardneri**, **lockleyi**, Punjab; **tripartitus**, E. Afghanistan, 191; *wachanrui*, 189, 191.
Quedius 216; **edwardsi**, S. Chile, 92.
Raeboscelis, 141.
Saprinus **neglectoides**, Mexico; *blandus*, *tarnieri*, *neglectus* 57.
Scelodonta **cuprea** 181, **gowdeyi** 182, Uganda; **vitivora**, Transvaal, 183; *kibonotensis* 182, *lefevrei*, *vitis* 183.
Scolytodes pseudoacuminatus, 274.
Scolytus **antennatus** 272, **elongatus** 273, Brazil; **nevermanni**, Costa Rica; *dimidiatus* 272.
Somoleptus **pulcher**; Brazil; *laevis* 90.
Spathidicerus **papuanus**, Papua, 276.
Stenelmis, 179.
Stetholus, to subfam. LARINAE from ELMINAE, 173; *laticeps* (see *Hydora*).
Tachinus **grandipennis**, S. Chile, 92.
Tagonoides (see *Gnaptorina*).
Targona, 164.
Taridius, generic characters, 202; key to Indian; **nilgiricus**, S. India, 204; **niger**, Madras, 205; *opaculus*, *birmanicus*, *stevensi* 204.
Tetronyx pectoralis, 11.
Thaxterius gen. n., 213; **sulcicollis** 214, Kamerun.
Tillus **vicarius**, United Provinces, 34; *elongatus* 34, 35.
Trichillum **minutum** 207, **arrowi**, **boucomonti**, Paraguay; *hystrix*, *ohausi* 208.
Xyleborus **percorthylus** 270, **sexspinatus** 271, Federated Malay States; **obstipus** 270, **macropterus**, Malay Peninsula; **okoumëensis**, Germany, 271; *batoensis* 270, *major*, *pseudomajor*, *semiopacus* 271.
Xylotrupes, 194.

HYMENOPTERA.

Anastatus 148; **dasyni**, Dutch East Indies, 146–148; **piezosterni** 148, **brevipennis** 149, Uganda; *blattidarum*, description of ♂, 150.
Apanteles **menuthias**, Madagascar, 266; **hymeniae**, Fiji Is., 267–269; *fakhrulhajiae* (*rufulus*) 72, *salutifer* 269, hosts and notes on; *mlanje*, *neavei* 267, *eros* 269.
Aximopsis javensis, 146.
Calosota **sinensis**, China, 152.
Cedria **anomala**, Burma, 71; *paradoxa* 71, 72.
Centris **rufosuffusa**, Trinidad, 12; *derasa*, *smithiana* 13.
Ecphylus hylesini, 72.
Epeolus, 10.
Epicharis fasciata **trinitatis**, Trinidad, 11, 12; *fasciata*, *affinis*, *quadrinotata*, *obscuricollis* 12.
Eupelmus 146, **curculionis**, Dutch East Indies, 145; *javae*, note on; *saissetiae*, *niger*, *tachardiae* 146.
Helorimorpha coffeae, *africana*, *rufa* 72.
Heterospilus 132; **microstigmi**, Trinidad, 131.
Mesocomys **orientalis**, Burma, 150–152; *pulchriceps* 152.
Microstigmus theridii, 132.
Morgania, 10.
Odyneropsis columbiana, 11.
Paracolletes, 48.
Parammobates batesi **veseyi**, Trinidad, 10; *brasiliensis*, *batesi* 11.
Pareumenes quadrispinosus, 153.
Pelopoeus (see *Sceliphron*).
Piezosternum, 149.
Polistes, 132.
Ponera custodiens, 144.
Prosopis, 153.
Rhathymus **trinitatis**, Trinidad; *ater*, *michaelis* 11.
Rhopalidia, 48.
Sceliphron (*Pelopoeus*) 210, *cementarius* 211, *figulus*, host of *Pachyophthalmus floridensis antillarum*, 212.
Signiphora, distinguishing characters from *Thysanus*, 133; **polistomyiella**, Trinidad, 132; *dipterophaga* 132, 133.
Thysanus, distinguishing characters from *Signiphora*, 133.
Trigona, 48.
Trigonopsis violacea, host of *Pachyophthalmus floridensis antillarum*, 212.
Trypoxylon palliditarse, *nitidum*, hosts of *Pachyophthalmus floridensis antillarum*, 212.
Xylocopa **submordax**, Trinidad; *brasilianorum*, *ordinaria*, *carbonaria*, *transitoria*, *mordax*, *varipuncta* 13.

LEPIDOPTERA.

Achatia cora 43, (*Triphassa*) *stalachtis* 46.
Acraea (*Aphanopeltis*, *Phanopeltis*, *Solenites*), 2.
Agrotis grata, 43.
Alunus gen. n.; **amatus**, Sierra Leone, 85.
Amathusia (*Ategana*), 1.
Antistathmoptera gen. n., 97; **daltonae**, Tanganyika Territory, 97–99.
Apatele tritona, 45.
Aphanopeltis (type fixed) (see *Acraea*).
Argema mimosae, 97.
Arletta, n.n. for *Moorea* Toxopeus *nec* Jones and Kirby, 3.
Ascalapha rufimargo 42, *bistria*, *atomaris* 43, *colliquata*, *pyralis* 45; (*Hemeroblemma*) *amethystina* 46.
Ategana (type fixed) (see *Amathusia*).
Blephara elonympha, 41.
Blepharum amica, 43.
Catoblepia zanthus, 265.
Celebina (type fixed) (see *Mycalesis*).
Cercyonis (see *Minois*).
Chloridea obsoleta, 210.
Chrysaor erythropterus, 42.
Cyrestis (*Sykophages*), 2.
Diatraea, 133.
Dichothyris (type fixed) (see *Mycalesis*).
Diphthera hebraeicum, 41.
Elasmion ligulella, 46.
Epirrita tipulata, 41.
Erastria pustularia, 44.
Erpyzon lituralis 41, *decoralis* 44.
Euclidia gracilis 40, *graphica* 41, *trifascia*, *bifascia* 42, *cuspidea* 43.
Eumenis (*Neominois*) 2, 3.
Everes hügelii (*dipora*), 121.
Glaucopis psophis, *phemonoë* 41, *maja* 43, *melanitis* 44, *vulcanus* 46.
Gloce margaritifera, *monilis* 41, *chloropha* 43.
Glyphodes polyoalis, 269.
Gonepteryx mahaguru (*zaneka*), 121; synonymy of subspp., 122.
Graphium sarpedon protensor (*semifasciatus*), 122.
Hamadryas jynx, 42.
Hapalia machaeralis, 71.
Heliaca punicalis, *octomacula* 45.
Heliothis jucunda, 44.
Hemeroblemma amethystina (see *Ascalapha*).
Hipocrita judas 42, *tendinosa* 44.
Holcocera pulverea, 72.
HÜBNER: "Erste Zuträge zur Sammlung exotischer Schmetterlinge" of 1808, note on, 38–40; collation of spp. mentioned, 40–46.
HÜBNER: "Verzeichniss der fertigen Blätter und Werke" of 1814, facsimile of and note on, 36–38.
Hymenia recurvalis (*fascialis*), 269.
Hypercompe tenera, 40.
Hypocrita cymaria 41, *chrysorrhoea* 42.
Hyporion (type fixed) (see *Polycaena*).
Idia longalis, 46.
Jaspidia nana 42, *bellicula* 44.
Lasaia (*Talites*), 2.
Lemur horrida 41, *lunifera* 44.
Lethe (*Magula*), 1.
LYMANTRIIDAE, lists of genera with types, 241–246.
Magula (type fixed) (see *Lethe*).
Mancipium chorographum 42, *hierte* 43.
Minois (*Cercyonis*), 3.
Miresa gilba, 85.
Mycalesis (*Celebina*, *Dichothyris*), 1.
Najas alcandra, 40.
Neominois (see *Eumenis*).
Nerëis phaedusa 41, *sao* 45, *aoede*, *apseudes* 46.
Opisthodontia **haigi**, S. Nigeria, 192.

Oreas gemma 40, *macrops* 43, *diplops* 44, *mollina* 45.
Oriens, 101.
Padraona (see *Potanthus*).
Palpita illibalis, *vitralis* 44, *argyralis* 45, *mellinalis* 46.
Pamela, n.n. for *Listeria* de Nicéville *nec* Robineau-Desvoidy, 3.
Panosmia (type fixed) (see *Polydorus*).
Papilio palaemon 100; *machaon annae* (*sikkimensis*) 122.
Parasa **chlorophila**, Sierra Leone; *catori* 85.
Petrophora bistrigata, 45.
Phanopeltis (type fixed) (see *Acraea*).
Polycaena (*Hyporion*), 2.
Polydorus (*Panosmia*), 2.
Potanthus (*Padraona*) type = *omaha* (*maesoides*); *mingo* (*nitida*); *californica* (*akar*); *dara* (*maesa*) 100–101; *confucius* & subsp. *flava*, *pseudomaesa* 101.
Prophyla turbulenta, 43.
Pseudamathusia (*Syntegana*), 1.
Ptilodon uncium, 42.
Rusticus leucophaeus, *bubastus* 44, *melinus* 45, *mopsus* 46.
Solenites (type fixed) (see *Acraea*).
Spatulifimbria **grisea**, S.W. India; *castaneiceps* (with var. *insolita*) 85.
Sphecomorpha polistes, *zethus* 42.
Sykophages (type fixed) (see *Cyrestis*).
Syntegana (type fixed) (see *Pseudamathusia*).
Talites (type fixed) (see *Lasaia*).
Teredo ambigua, 46.
Terpne bistrigaria, 46.
Tetrachila respersella, 45.
Thosea **phaeobasis**, Madras; *tripartita* 86.
Tribonophora pygmaea, 45.
Triphassa stalachtis (see *Achatia*).
Xanthia rufago, 43.
Yvretta, n.n. for *Chaerephon* Godman & Salvin *nec* Dobson, 3.
Zariaspes mys, 100.

DIPTERA.

Acanthocnemis ater (see *Dilophus*).
Actinoptera, 6.
Afreutreta **chirindana**, S. Rhodesia, 4; **bevisi**, Natal, 5.
Amobia, status discussed, 213.
Atrichopogon 49; **glaber** 50, 89, **insigniventris**, **umbratilis** 51, 89, **flumineus** 52, 89, Brazil (not Amazon); *harpagonum*, *mendozae*, *auricoma* 51, *obfuscatus*, *chilensis* 52.
Bibio 19; **peruvianus**, Peru; *holti* 20.
Bibionellus gen. n.; **tibialis**, Bolivia, 19.
BIBIONIDAE, new species of neotropical, 19–24.
Calamoncosis nigricornis, *laminiformis* 31.
CERATOPOGONIDAE, new Brazilian spp. of, 49–56, 89.
Conioscinella triangularis (*longirostris*, *pusio*), 31.
Culicoides 49, 55; **amazonius**, Brazil (not Amazon), 52, 89; *phlebotomus* 52, 53, *diabolicus*, *guttatus* 54, 89.
Curtonotum **cuthbertsoni**, S. Rhodesia, 31, (fig.) 28; *anus* 31.
Dasyhelea 49; **hippolytae** 54, 89, **penthesileae**, **thalestris** 55, 89, Brazil (not Amazon); *columbiana*, *albopicta* 55.
Dilophus 19; **balfouri**, Colombia, 20; **villosus**, Ecuador; **piliferus** 21, **elephas**, **nubilipennis** 22, **clavipes**, 24, Peru; **occipitalis**, Brazil, 21; **distinguendus**, **flavistigma**, **arenarius**, Chile, 23; **microcerus**, Argentina, 24; *giganteus* 20, *collaris*, (*Acanthocnemis*) *ater*, *longiceps*, *tapir* 22, *luteus*, *carbonarius*, *flavihalter* 23, *tetracanthus* 24.
Dolichotachina **cuthbertsoni**, Southern Rhodesia, 143; *marginella* 144.
Drosophila **nutrita**, S. Rhodesia, 33; *fasciata* 34.
Ensina, 6.
Eukraiohelea 49, 56; **amnigena**, Brazil (not Amazon), 56, 89; *africana* 56.
Eutropha nicobarensis, 240.
Forcipomyia, characters of ♀♀ collected in Brazil (not Amazon), 49, 89; (*Lasiohelea*) **aeronautica**, British Guiana, 265; *lepidota*, *castanea* var. *incomptifeminibus*, *inornatipennis* (with var. *ornaticrus*) 49, 89, *papilionivora*, *eques*, *pectinunguis* 265.
Formosina **cardami**, S. India, 239–240; *gigas* 239.
Gitona **darwendalei**, S. Rhodesia, 31; *distigma* 31, 32, *beckeri* 32.
Goniopsita, 238.
Gymnosagena, gen. n.; **unicornuta**, S. Rhodesia, 5.
Hammaspis 28.
Heteroscinis (type *variegata*) (see *Polyodaspis*).
Lasiohelea; **louriei**, Brazil (not Amazon), 49, 89; *shannoni*, *stylifer* 50.
Leucophenga **buxtoni**, N. Nigeria, 32; *lewisi*, Sierra Leone, 33.
Macrothorax (see *Polyodaspis*).
Microsania, note on N. American spp. of, 65–66; **occidentalis**, N. America, 66; (*Platycnema*) *imperfecta*, *stigmaticalis*, (note on), 65, 66, *pectinipennis* 66.
Milichia (**Pareccoptomma** subgen. n. 25) **nigeriae**, Nigeria, 26.
Milichiella (subgen. *Eccoptomma*) 25, 26; *solitarium*, *montanum* 26; *tosi* 240.
Miltogramma sarcophagina, probably the ♀ of *Pachyophthalmus erythrura*, 210.
Notonaulax trisulcata, 29.
Pachyophthalmus 209–213; key to spp., 209; notes on spp., 210–213; *signatus*, *distortus*, *pelopoei*, 210, *erythrura* 210–211, *floridensis* (with subsp. **antillarum**, Trinidad, 212) 210, 211, 212, *hinei* 212, *unica*, comparison with *floridensis*, 212–213.
Palpomyia dorsofasciata, 56.
Parasphaeniscus, 5.
Paratheresia claripalpis, 133.
Platycnema imperfecta (see *Microsania*).
Polyodaspis (*Macrothorax*, *Heteroscinis*) **lamborni**, Nyasaland, 29–31; (*Heteroscinis*) *variegata*, *ornata*; synonymy discussed, 31.
Sarcomacronychia unica (= probably *trypoxylonis*) (see *Pachyophthalmus*).
Scoliophthalmus **micantipennis**, discussion of related spp., 238, description 239, Tanganyika; *trapezoides*, *obliquus*, *arabicus*, *micans*, *albipennis* 238.
Siphonella 31; *ruficornis* 29, 30, 31, *aenescens*, *amabilis*, *albipennis* 31.
Spathulina, 5.
Spheniscomyia binaria, *quaternaria*, *quinaria*, *senaria* 5.

Stilobezzia, 56.
Suillia balteata, 25.
Tephrella 5; **austeni**, Sierra Leone; *katonae* 7.
Tricimba (**Echimba** subgen. n. 27) **annulipes**, S. Rhodesia, 28; *linecella* 27, 29, *setosa* 29.
Trypanea **lamborni**, Nyasaland; *woodi*, *mutila* 6.

HEMIPTERA.

Acyrthosiphon **geranicola**, Holland, England, 114; *onobrychidis*, *loti*, *pelargonii* 115.
Agriosphodrus, 47.
Aleurocanthus **punjabensis**, Punjab, 8; *woglumi* 9.
Aleurolobus **citrifolii**, Punjab, 9.
Amorphococcus acaciae, 217.
Antestia lineaticollis, 72.
Aonidiella aurantii, 75.
APHIDAE, new English, 114–120.
Aphis sambuci, biology; *wilsoni*, possibly a synonym or var. of *sambuci*, 116.
Asterolecanium bambusae, *conspicuum* 217, *miliaris*, *stentae* 218, host-plants and notes on, 217, 218.
Cerococcus **theydoni**, S. Rhodesia, 218; *ovoides*, *ornatus* 219.
Ceroplastes **pseudoceriferus**, Ceylon, India, Japan; distinguishing features from *ceriferus*, 180.
Ceroputo, 233.
Chaitophorus, 116.
COCCIDAE, observations on Southern Rhodesian, 73–84, 217–226; new from Kenya, 233–237.
Dactynotus tanaceticola; subsp. *achilleae*, now recorded from England, 116.
Dasynus piperis, 148.
Doralis **corniella**, Holland, England, 117; biology, 118.
Fullawayella (type *kirkaldyi*), a synonym of *Idiopterus*, 117.
Gonteosphodrus gen. n.; **bicolor**, Papua, 47; characters and habits, 48.
Hemilecanium **coriaceum**, Southern Rhodesia, 73; *imbricans* 74.
Howardia biclavis, 84.
Hyperomyzus, key to European spp., 119; **pallidus**, Holland, England, 118; *lapsanae*, *lactucae* 119.
Idiopterus (*Fullawayella*); *nephrolepidis* 117.
Inglisia **grevilleae**, Southern Rhodesia; *geranii*, host-plant and note on, 83.
Lecaniodiaspis **parinarii**; *mimosae* and var. **brachystegiae**, S. Rhodesia, 219; *tarsalis*, host-plants, 221.
Lecanium **msasae** 75, **rhodesiensis** 76, Southern Rhodesia; *elongatum*, host-plants; *pseudelongatum*, probably a var. of *elongatum*; *hesperidum*, host-plants, 74, note on, 75; (*Saissetia*) *oculata* 76.
Macrosiphoniella **usquertensis**, Holland, England, 119; biology; *millefolii* 120.
Neotoxoptera, comparison with *Paramyzus*, 117.
Nezara viridula, 148.
Nipponaphis distylii, 88.
Odonaspis 222; **phragmitis**, S. Rhodesia, 221; *ruthae*, host-plant and note on, 222.
Paramyzus, probably a subgenus of *Neotoxoptera*, 117; *heraclei*, redescribed, 116–117.
Paraputo **multispinosa**, Kenya, 233–235; *ritchiei* 233, 234, 235.
Periphyllus **templi**, Kent; *lyropictus* 116.
Physomerus grossipes, 148.
Platysaissetia kellyi, note on Southern Rhodesian, 77.
Pleiotrichophorus **duponti**, Holland, England; *glandulosus* 114.
Protopulvinaria, 78.
Pseudococcus **kenyae** 185–188; comparison with *lilacinus*, 187–188; **kikuyuensis** 235, **erigeroni** 236, Kenya; *lilacinus* 185, *citri* 188, *maritimus* 235, 236, *eriogoni* 237.
Puto, 233.
Saissetia; **monotes**, Southern Rhodesia; *hemisphaerica* 78; *oleae*; *persimilis*, probably a form of *oleae* 80; *nigra* 80, 81; *signatum subpatelliforme* 81, host-plants and notes on; *oculata* (see *Lecanium*).
Saltusaphis ornatus, descriptions, biology, localities, 115.
Stictococcus **brachystegiae**, S. Rhodesia, adult ♀ 222, fig. 223, 2nd stage ♀, ♂ and ♀ larva 224, ♂ prepupa and pupa, adult ♂, host-plants 225, comparison with *gowdeyi*; *sjostedti*, *multispinosus*, *formicarius*, *coccineus* 226.
Thoracaphis 88; **piyananensis** 86, **saramaoensis** 88, *fici* var. **foveolatae** 89, Formosa; *distyliifoliae* 88.
Toumeyella 83; **lomagundiae**, Southern Rhodesia, 81–83.
Trialeurodes **mossopi**, S. Rhodesia, 9; *rara* 10.

THYSANOPTERA.

Acanthothrips, 195.
Actinothrips, characters; key to known spp., 247; **trichaetus**, Panama, Trinidad, Ecuador, 248–252; **monochaetus**, British Guiana, 252–254; *longicornis* 247, 248, 252, *bondari* 248, 252, 254.
Bactrothrips **kenyensis**, Kenya Colony; *longiventris* 129, *divergens* 129, 130.
Baliothrips, 125.
Docidothrips **imitans**, Formosa; *demonstrans* 127.
Ecacanthothrips, note on; table of spp., 195; **priesneri**, Tanganyika, 194, 195, 196–199; *crassiceps*, *flavipes*, *bryanti*, *sanguineus*, *coxalis*, *steinskyi*, *inermis*, *bagnalli*, *inarmatus*, *coniger* 195.
Elaphrothrips, 247.
Euchaetothrips, 125.
Eupathithrips, 195.
Eurhynchothrips **hargreavesi**, Sierra Leone, 130; *flavicornis*, *convergens*, *ordinarius* 131.
Frankliniella, 125.
Gastrothrips proteus, heterogonic development in, 193.
Hoplandrothrips, 195.
Isochaetothrips, 125.
Parabaliothrips gen. n.; **takahashii** 125, **grandiceps** 126, Formosa.
Phlaeothrips 195, 201; **poecilus**, Tanganyika, 199–201.
Taeniothrips 125, discussion of relationships of spp., 129; **cognaticeps** 127, **alliorum** 128, Formosa; **miorrhizae**, **montivagus**, **brevistylus**, 129; *frici* 125, *vulgatissimus* 128,

129, *immsi*, *concaviceps*, *picipes*, *kotoshoi*, *andrewsi*, *pallidivestis* 129.
Thysanoptera, note on heterogony in, 193–195.
Trichothrips, 201.

PSOCOPTERA.

Cymatopsocus opalinus 135, 136.
Lepidilla kelloggi (*Pteroxanium squamosum*), 137.
Mesopsocus, 137.
Nephax gen. n.; **sofadanus**, Palestine, 134; **capensis**, South Africa, 136; general discussion on, 134.
Pteroxanium squamosum (see *Lepidilla kelloggi*).
Syllysis, 134.

ORTHOPTERA.

Aboilus, diagnosis; type = *fasciatus*, 105.
Anaplectoidea nitida, 14.
Blatta xanthophila (see *Pseudothyrsocera*).
Blattella **erythrocephala**, Celebes; *germanica*, *bisignata*, *cuneivittata*, *subvittata* 15, *suppellectilium* 150.
Bradyporus, 108.
Bumacris, redescription, 165; **monotona** 166, **pagdeni** 167, Solomon Islands; *flavomaculata* 165, description of ♀, 166.
Chauliodes (see *Hagla*).
Cranaë **signata**, Solomon Islands, 167.
Cycloptiloides, 123.
Cyphoderris, systematic position, 102; diagnosis 104; venation 107; *monstrosus*, *buckelli* 102, 105.
Cyrtophyllites, diagnosis, 106; wing formation, 107; type = *rogeri*; *musicus* 106.
Cyrtophyllitinae, subfam. n., 106.
Ebnerella, n.n. for *Shelfordella*, Hanitsch *nec* von Adelung; (*Phyllodromia*) *terminalis*, (*Neoblattella*) *fusco-castanea*, (*N.*) *latimarginata*, (*N.*) *digitata*, (*Shelfordella*) *uniformis* 14.
Eremogryllodes seurati, 123.
Eucycloptilum gen. n., 122; **longipes** 123, **veali** 124, S.W. Africa.
Gryllodes, 122.
Gryllomorpha, 122.
Gryllus; *domesticus* 122.
Hagla (*Haglodes*, *Chauliodes*, *Orthophlebia*, ?*Myrmeleon*), systematic position and scope, 102; diagnosis 105; wing-formation 107; *gracilis* 102, 105.
Haglodes (see *Hagla*).
Hemithyrsocera (*Thyrsocera*) *soror*, 14.
Homalopteryx macassariensis, *adusta* 18.
Homopteroidea nigra, distribution, 14.
Ischnoptera perpulchra (see *Symploce*).
Liassophyllum gen. n.; **abbreviatum**, England, 106.
Miopanesthia discoidalis, recorded from Celebes, 14.
Modernacris **simplex**, Solomon Islands, 168.
Myrmeleon (see *Hagla*).
Neoblattella fusco-castanea, *latimarginata*, *digitata* (see *Ebnerella*).
Notopamphagopsis, diagnosis; type = *bolivari*, 105.
Orthophlebia (see *Hagla*).
Pamphagopsis; type = *maculata*; *modesta* 107.
Periplaneta tartara (see *Shelfordella*).
Phaeophilacris, 122.
Philobothrium, 123.
Phyllodromia terminalis (see *Ebnerella*).
Procyrtophyllites gen. n.; **britannicus**, England, 106.
Prophalangopsidae, recent and fossil; definition of the family, 102–108.
Prophalangopsis, systematic position, 102; diagnosis 104; venation 107; 103, 105, 108; type = *obscura* 102, 103, 104.
Pseudothyrsocera **henrici**, Celebes, 17; (*Blatta*) *xanthophila* 18.
Pycnoscelus **aurantius**, Celebes, 18; *surinamensis*, *striatus* 19.
Rammea laticeps, 108.
Rhabdoblatta truncata, 18.
Salganea rectangularis, 19.
Shelfordella, Hanitsch (see **Ebnerella**).
Shelfordella, von Adelung (type *Periplaneta tartara*), 14.
Shelfordina, 14.
Symploce **albomarginata** 16, **fissa** 17, Celebes; (*Ischnoptera*) *perpulchra* 14, redescription 15, *cavernicola* 16, *sarasinorum* 16, 17.